

A STUDY OF
CONSTRUCTION CONTRACT MODIFICATION;
CAUSES AND IMPACTS

A Special Research Problem

Presented to

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by

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ABSTRACT

This paper discusses contract modification in public and private construction contracts. Previous studies on the same subject were limited to one type of organization, i.e., public contracts. This paper will cover both types of contracts and identify their differences. The problems of contract modification or change order are addressed in Chapter I.

Contract modification terms in private contracts lack consistency in use while federal terminologies are easier to extract since one standard document, the Federal Acquisition Regulation (FAR), is used. Chapters II and III identify these differences.

Chapter II discusses contract modification in private industry. The major discussion, however, is in the use of standard documents by the American Institute of Architects (AIA).

Chapter III is contract modification in federal contracts. State and local governments use standard contract clauses which are in some cases similar to the clauses in Federal Acquisition Regulations. Therefore, a study of federal contracts will cover in general many of public contracts.

Chapters IV and V look at the different causes and impacts of contract modification. Relationships of contract changes to

contract modification, contract amount, change order, claims, government estimate, and other factors affecting a lump sum contract are discussed. These two chapters are based on latest publications and reports on contract modifications.

Chapter VI is a report on an independent study conducted at four Naval installations on contract modification. The report includes: the factors affecting changes and change orders; frequency of claims; relationship of government estimate to low bid; and impacts of contract modification to project costs and project schedule.

Chapter VII contains recommendations and conclusions of this study.

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CHAPTER I

INTRODUCTION

Even with newer, more sophisticated methods in site investigation and highly technical methods of project planning and design, it remains difficult to foresee all conditions that will be encountered in construction. Further, due to the competitive nature of construction, especially bid price contracts, understanding the causes and effects of contract modification to cost, project schedule (delay) and quality is extremely important.

The major objective of this study is to present to the contracting parties, whether public or private, a document that they could use (1) to understand the effects and causes of contract change and modification; and (2) to realize that changes to the contract require careful review and consideration.

To identify and study how projects are planned and initiated are important to avoid or reduce modifications during the course of the project. It is widely accepted that a carefully planned project results in significant savings during construction due to elimination or reduction of unnecessary stoppage and delay caused by design errors, insufficient specifications and requirements, poor technical and construction methods, and unnecessary

processing of modifications and claims.

Controlling cost is important because funds could be limited. Private contracts are normally backed through loans from banks. Increases in the cost of the project could be limited due to unavailability to finance the increased cost. Public contracts are more complicated since limits to funds are set by statute. If funds exceed a certain amount, the increased cost will require approval and consequent delay from higher authority. In the case of federal contracts, approval may come from Congress.

Meeting the planned completion date is also important. These dates are normally dictated by an event milestone such as grand opening of a stadium or retail store. If this date is not met then financial loss could be severe. It is then important that project delay is minimized. Eliminating unreasonable changes and modification to the contract after initiation of construction is warranted. Unfortunately, projects do not always go as planned due to the many factors affecting the project. This paper will address these causal factors and costs.

CHAPTER II

CONSTRUCTION CONTRACT MODIFICATION

IN PRIVATE INDUSTRY

This chapter discusses how contract changes are typically handled in private industry. Additionally, contract modification terminology will be explained in detail.

TERMS USED IN PRIVATE INDUSTRY

Private industry understands and use the following terms when discussing contract modification (Sweet, 1989):

Change is a term used in construction contracts that allows the owner to unilaterally direct that changes be made without obtaining consent to perform the work by the contractor. This is allowed with the addition of changes clause in the contract.

Modifications, on the other hand, are two-party agreements in which the owner and the contractor mutually agree to change portions of the work.

A waiver is generally based on the owner's acts that either manifest an intention to dispense with some of the contractual requirements or lead the contractor to reasonably believe that

the owner is giving up its right to have required work performed. In such a case, the contractor can recover the full contract cost despite non-compliance with the contract documents.

AIA defines change order as the "wrap-up" paperwork after there has been agreement as to price and time adjustment. Change order results from modification or change in the contract. In private industry, change and change order are used interchangeably. The reason for this is that the traditional use of "change order" is for "owner-directed change" to the contract. Through the efforts of the AIA, there is an attempt to standardize definitions to avoid confusion in the use of terminology (Sweet, 1989).

There are two types of change. They are additive change and deductive change. Additive change is when additional work is added in the original contract. This type of change normally increases the value or cost of the project. Additive change is change within the scope of the contract.

Deductive change or "deduction" is when there is a reduced in the amount of work which requires cancellation of an item in the contract. Depending on the contract agreement, the owner will normally request reduction in project cost commensurate to the canceled work or effort. Both parties, the owner and the contractor, have to mutually agree on the adjustment. If there is a dispute on the amount of the change order, a claim normally is

initiated. Deductive change is handled as a bilateral agreement in federal contract.

Extra work or extras are services, equipment, and materials outside the scope of work as defined by the contract documents. It is work that was not figured in the contractor's bid or in the contract price. This is also called "cardinal change." The contractor can refuse to perform out of scope change.

Claims are defined as the seeking of consideration or change, or both, by one of the parties to a contract based on an implied or express contract provision. Once the claim has been presented, the owner and the contractor can come to an agreement concerning the claim and, thereby, create a change order or a modification, or they may disagree and create a construction contract dispute (Diekman et al, 1985).

CONTRACT MODIFICATION IN PRIVATE INDUSTRY

In private industry, selection of contractors is not always done by use of competitive bids. Many private owners rely on the reputation of contractors. When this is done, negotiation is the most common type used. In fact, some large contractors and not by choice have majority of their workload as negotiated contracts (Rosser, 1989). This is probably the biggest difference between federal and private contracts, i.e., federal contracts have to be

done by competitive bidding and award the contract to the lowest responsive bid while private owners have the luxury of choosing the contract type to suit the situation and possibly, to their advantage.

Many will say that the number of contract changes in federal contracts is more in frequency than in private industry. On the contrary, they are about the same (Dawkins, 1987). The reason for this is that majority of contract changes are caused by the same factors - owner-directed change, design error, differing site conditions, weather, etc. In fact, federal contracts are restricted to request out of scope change since extra work is considered new acquisition or procurement. The number of claims in federal contracts may be more. A contractor that needs work may reduce his profit margin and assumes increased risk or he may "qualify" his bid. To recover loss, the contractor results to claims procedure.

If extra work or changes beyond contract requirements occur then the contractor is normally entitled to an increase in cost of performance of the contract provided a written notice is given to the owner prior to initiation of the extra work. If the contractor fails to recognize the extra work and fails to give notification to the owner, the contractor may be barred from claiming additional compensation under the contract. A careful review of AIA changes clause is warranted.

CHANGES IN THE WORK CLAUSE

AIA incorporates modification to the contract in Article 7 of AIA Document A201 (Appendix E). Changes in the work are accomplished after execution of the original contract, i.e., after it is signed by agreeing parties. It does not invalidate the original contract but serves as an addendum. Changes in the work are accomplished by either of the three types of changes - change order, construction change directive or order for minor change in the Work. A "change order" is based upon agreement among the owner, contractor and architect. A "construction change directive" requires agreement by the owner and architect and may or may not be agreed to by the contractor. An "order for minor change" is issued by the architect alone.

A change order is a written instrument prepared by the architect and signed by the owner, contractor and architect, stating their agreement upon all of the following: (1) a change in the work; (2) the amount of the adjustment in the contract sum, if any; and (3) the extent of the adjustment in the contract time, if any.

A construction change directive is a written order prepared by the architect and signed by the owner and architect, directing a change in the work and stating a proposed basis for adjustment, if any, in the contract sum or contract time, or both. The owner may by construction change directive, without invalidating the

contract, order changes in the work within the general scope of the contract consisting of additions, deletions or other revisions, the contract sum and contract time being adjusted accordingly. A construction change directive is used in the absence of total agreement on the terms of the change order.

The architect will have authority to order minor changes in the work not involving adjustment in the contract sum or extension of the contract time and not inconsistent with the intent of the contract documents. Such changes are effected by written order and is considered binding on the owner and the contractor. The contractor is required to carry out such written orders promptly.

TERMINATION OR SUSPENSION OF THE CONTRACT

AIA Document A201 allows termination or suspension of the contract by either parties. The contractor can terminate the contract for cause while the owner can terminate the contract by cause or suspend the contract by convenience. Termination is stopping of the work completely and terminate further execution of the contract while suspension is temporary stoppage or delay of performance.

A. Termination by the Contractor - The contractor is allowed to terminate the contract if the work or project is stopped for a period of 30 days through no act or fault of the contractor or

subcontractors. Termination by the contractor is allowed for any of the following reasons: (1) issuance of an order of a court or other public authority having jurisdiction; (2) an act of government, such as declaration of national emergency, making material unavailable; (3) failure of the architect to issue Certificate for Payment and has not notified the contractor of the reason for withholding certification or because the owner has not made payment within the time stated in the contract; (4) repeated suspensions, delays or interruptions by the owner constitute more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less; or (5) the owner has failed to furnish to the contractor, upon the contractor's request, reasonable evidence of financial arrangements for payment.

The contractor is required to submit within 7 days a written notice and may recover from the owner payment for work completed, proven loss including reasonable overhead, profit and damages.

B. Termination by the Owner for Cause - The owner may terminate the contract for the following reasons: (1) repeated failure of contractor to supply enough properly skilled workers or proper materials; (2) contractor's failure to pay subcontractors or suppliers for materials or labor; (3) contractor's persistent disregard to laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction;

or (4) breach of contract.

Termination for cause gives the owner the right to (1) take possession of the site and all materials, equipment and machinery thereon owned by the contractor; (2) accept assignment of subcontracts; and (3) complete the work by whatever reasonable method the owner may deem expedient.

C. Suspension by the Owner for Convenience - The owner can suspend, delay or interrupt the work in whole or in part for any reasons as desired by the owner. The contractor is entitled to recover increased cost of performance of the contract including profit. The suspension has to be issued by the owner to the contractor in writing.

CHAPTER III

CONSTRUCTION CONTRACT MODIFICATION

IN FEDERAL CONTRACTS

This chapter summarizes how contract modification is viewed in federal contracting. It is presented in the same manner as Chapter II with an additional section on the similarities and differences of terms used in private and federal contracts.

TERMS USED IN FEDERAL CONTRACTS

The Federal Acquisition Regulation (FAR) serves as the guideline for federal acquisition and has different meanings to some of the terms mentioned previously in Chapter II. Any change in the terms of a federal contract has to be in writing. Therefore, the FAR defines contract modification as any written change in the terms of the contract. Contract modification can be categorized in several ways but the most common and is most understood by federal acquisition group is by dividing it into either bilateral or unilateral modification (Roth, 1990). The contracting officer, who is either a senior civilian employee or a commissioned officer, represents the government (the owner) in contract transactions.

A bilateral modification is a contract modification signed by the

contracting officer and the contractor. Both parties agree to the terms of the modification. The FAR also calls this type of change as "supplemental agreement" since the change is a supplement to an original contract. There is no distinction between in-scope and out-scope modifications. Any modification signed by both parties is a supplemental agreement.

A unilateral modification is a modification signed only by the contracting officer. There does not have to be any concurrence or agreement by the contractor. One party directs the other party. In federal contracts, only the government has the entitlement to give unilateral direction. There are a number of clauses in federal contracts that give the government the right to direct a contractor without his consent. The major ones are the Changes clause, the Suspension of Work clause, the Termination for Convenience clause, and the Termination for Default clause. These clauses are discussed later in this chapter. Additionally, lists of federal contract clauses (firm fixed price construction contract) are included as Appendices A and B.

A change is any alteration within the scope of the contract. These changes can be made in the specifications, drawings, designs, methods of construction, types of government provided material,....and in a fixed price contract time for performance may be changed (Army, 1987). These include in-scope and out-of-scope changes whether unilateral or bilateral modifications.

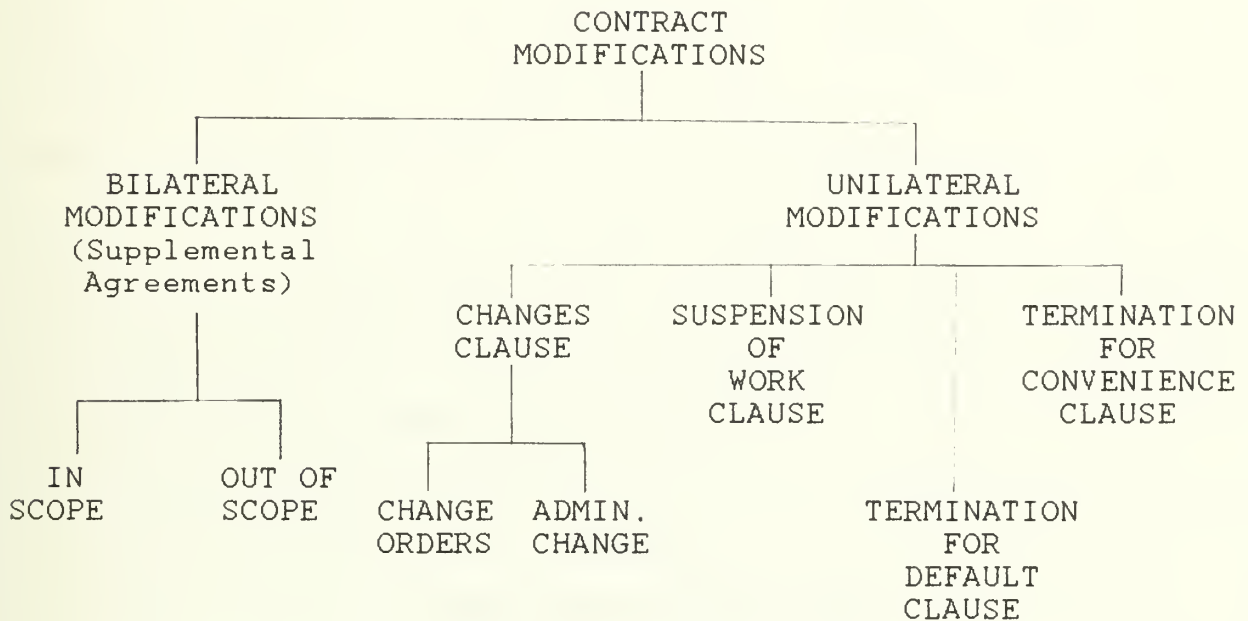
A change order is a written order signed by the contracting officer directing the contractor to make changes which the changes clause authorizes him to make without the consent of the contractor. The changes must be in writing and they must specify that an equitable adjustment in the contract will be made if the change involves an increase or a decrease in the contract price or delivery schedule, or both. The contractor is required to comply with the change pending the outcome of negotiations to establish this equitable adjustment.

Administrative Changes are written, unilateral changes that do not affect the substantive rights of the parties. They are used to make changes such as a change to address of a government office or the name of contracting officer.

For further clarification and summary, figure 1 (Roth, 1990) illustrates the different categories of contract modification.

FIGURE 3.1

CATEGORIES OF CONTRACT MODIFICATIONS



Now that the most common definitions for both private and federal contracts in terms of contract modification were mentioned and defined, it is wise to summarize there differences.

FEDERAL VS. PRIVATE CONTRACTS

Change as defined by Sweet (1989) is a change order in federal contracts. Modification in private contracts is a bilateral

modification (or supplemental agreement) in federal contracts. Waiver, although most prevalent in private contracts, is not used in federal contracts since any change to the contract has to be in writing and only the contracting officer can initiate and enter into an agreement to change the contract. The government does not waive its right. Change Order by Sweet (1989) is the signed document or standard form used in federal contracts. Deduction (or deductive change) is used similarly. Extra Work (or extras) is called out of scope change in federal contracts. Claims are used similarly. For clarity, the terms are summarized and listed in Table 1. It is important to note that other texts may use and define these terms differently.

TABLE 3.1

MOST COMMON TERMS USED
IN CONTRACT MODIFICATION

<u>Private Industry</u>	<u>Federal Contracts</u>
Contract Change	Contract Modification
Change	Change Order (Unilateral Modification)
Modification	Supplemental Agreement (Bilateral Modification)
Waiver	N/A (Not Waived)
Change Order (Signed Document)	Contract Modification (Signed Document)
Extras or Extra Work (Cardinal Change)	Out of Scope Changes (Supplemental Agreement)
Claim	Claim

CONTRACT MODIFICATION IN FEDERAL CONTRACTS

Contract modification is essential to Government contracting to correct mistakes after award, to effect changed requirements as defined by the technical activity, and to incorporate improvements in design and production. If the Government did not have the power to alter the contract to meet changed conditions, the taxpayer's money would be spent for goods or services that are not needed. Modification clauses give the Government legal authority to protect itself against changed conditions. Although contractors may argue that low bid projects deserve low bid work or quality, it is with this contention that the Government has to protect itself with these important and powerful clauses to prevent abuse by unscrupulous and incompetent contractors. The major clauses in federal contracts are: Changes clause; the Suspension of Work clause; the Termination for Convenience clause; and the Termination for Default clause.

CHANGES CLAUSE

The clause most often used by the Naval Facilities Engineering Command (NAVFAC) and other federal organizations to take unilateral action is the Changes clause. Section 52.243-4(a) of the FAR for fixed-price construction contracts states that:

The Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work

within the general scope of the contract, including changes-

- (1) In the specifications (including drawings and designs);
- (2) In the method or manner of performance of the work;
- (3) In the Government-furnished facilities, equipment, materials, services, or site; or
- (4) Directing acceleration in the performance of the work.

By written notice, the Contracting Officer can issue a "change order" to make changes to the work unilaterally without the contractor's consent. The phrase "without the contractor's consent" is important to distinguish between bilateral and unilateral modifications. There is a fine line between these two types of contract modification. If the contractor's consent was not asked on the change then modification is unilateral. If the contractor's consent was asked and agreed to the change, then it becomes bilateral modification. Therefore any modification signed by both parties, whether in-scope or out-of scope, is a bilateral modification and is also called supplemental agreement.

Another important point to mention is that a unilateral change is only allowed for in-scope changes. If it is an out-of-scope change then the government loses its right to use unilateral action. As mentioned earlier, out-of-scope change is considered new acquisition by the FAR and requires new procurement procedures.

If the contractor feels that a change order or an out-of-scope

change was given by the Contracting Officer or his representative, he is required to give the Contracting Officer a written notice. Failure to do so may bar the contractor to claim the extra cost as a result of failure to notify the Contracting Officer. This procedure is similar to the requirements in private contracts using AIA procedures and guidelines. The written notice is a good tool to put the government (the owner) on notice that a directed change may involve increased cost and time extension.

SUSPENSION OF WORK CLAUSE

Another important tool for the government to issue unilateral change is by the use of Suspension of Work clause. Section 52.212-12(a) of the FAR for fixed price construction contracts states that:

The Contracting Officer may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government.

Under this clause, the government by written notice is allowed to suspend, delay, or interrupt all or part of the contract if necessary. The contractor is given compensation for increased costs excluding profit. The major difference between private and federal contracts in terms of Suspension of Work is the allowance of profit, i.e., private contracts allow profit while federal contracts does not.

TYPES OF TERMINATION

In government contract, there are six ways in which a contract may terminate (Army, 1987):

(1) Performance - All duties as defined the contract are properly discharged.

(2) Mutual Consent - Prior to act or at any time during performance the parties may reach bilateral accord in regard to the discharge of their duties. This results in a no-cost settlement whereby each party releases the other of his respective contractual obligations.

(3) Operation of the Law - Contractor who is providing personal services dies, or goes into bankruptcy.

(4) Force of Public Policy - Enactment of positive law that invalidates current law, e.g., law forbidding use of asbestos products.

(5) Termination for Convenience of the Government - When in the best interest of the government.

(6) Termination for Default - When the contractor fails to perform elements of the contract.

The two most common types of termination in construction contracts are Termination by Convenience and Termination by Default and are discussed in detail.

TERMINATION FOR DEFAULT

There are many reasons why a contractor is expected to carry out his contractual duties. A contractor expects to do a good job because: (1) his prospect of increased profit if project is efficient, and completed on time and within budget; (2) his desire to retain good reputation; (3) self-satisfaction; and (4) avoid consequences of a default action. However, some contractors fail to do their part of the deal and leave the owner with an unfinished project and financial loss. Section 52.249-10 of FAR, Termination for Default (Appendix A) is used as an effective tool in insuring contractor's compliance to the contract. This is similar for both private and public contracts, i.e., the contractor is expected to carry out his contractual obligations.

Damages resulting from contractor's breach of contract should be borne by the contractor. The owner is expected to receive what he paid for. If a contractor defaults on the contract, his consequences can be financially severe and professionally damaging. A contractor who defaults on the contract may: (1) forfeit profit; (2) be liable for excess costs; (3) incur additional damages; (4) suffer loss of an otherwise good reputation (Army, 1987).

As stipulated in the clause, if the contractor defaults on the contract, the Government may go out on the market and reprocure,

using approved procedures, against the account of the defaulted contractor. Consequently the contractor will be billed for the difference between the contract price and the actual purchase price plus administrative expenses associated with making the reprocurement. It is also possible that the Government could recover liquidated damages and other costs.

TERMINATION FOR CONVENIENCE

When both parties in the contract enter into an agreement and signed the contract, both the contractor and the Government expect it to be completed. However, situations may arise which would make completion of the contract or project impractical or uneconomical. The philosophy of and procedures for Termination for Convenience in the civilian agencies are essentially the same as those described for the Department of Defense (Army, 1987).

The major reasons for termination for convenience are: (1) improper termination for default, i.e., a contract which has been erroneously terminated for default by the Government is converted into a termination for convenience; and (2) reduction in or elimination of Government's need or desire for products or services due to technological advancement, general cutbacks, equipment deficiencies, funding or budgetary problems.

Termination for Default has two purposes: (1) to provide an

expeditious procedure for processing contractor's termination claims; and (2) to relieve the government from liability for breach of contract damages. The contractor by signing the contract agrees that the Government has the right to terminate the contract in whole or in part, without liability for common law damages. The Government agrees to pay the contractor his costs plus reasonable profit on work done and preparations made on terminated portion of the contract. Since contract terminations can adversely affect the economic well-being of entire regions, for large contracts, it is very important that termination claims be settled with dispatch. The objectives of the Termination for Convenience clauses are thus fairness, speed, and finality (Army, 1987).

CHAPTER IV

CAUSES OF CONTRACT MODIFICATION

Contract changes and modifications for federal and private contracts were discussed in the last two chapters. As mentioned, consistency in the use of terminology is warranted. For succeeding chapters, "change order" as used in private industry will be used in the same context as "contract modification" in federal contracts, i.e., any written change in the terms of the contract and includes in-scope and out-of-scope changes.

FACTORS AFFECTING CONTRACT MODIFICATION

The factors which contribute to changes in the contract are classified into 3 groups. They are owner, contractor, and "outside" forces (Dawkins, 1987; Arditi et al, 1989).

A. Owner - The owner or his agent (architect, project manager, construction representative, etc.) contributes a significant number to the causes of contract modifications. Some of the reasons are: acceleration of contract completion date; failure to provide site access; failure to provide owner furnished material; creating major scope changes after construction has started; lack of funds; delay of payment; failure to coordinate work of contractors working in the same

area for the owner; defective plans and specifications; delay in review and approval of shop drawings and submittal; lack of site investigation resulting in differing site conditions; inadequate information (including as-built drawings); improper handling of change orders; failure to provide contractually required utilities; and failure to communicate.

Contract modifications caused by the owner/owner agent compensates the contractor for extra work or costs associated with the delay of work.

B. Contractor (and subcontractor) - The contractor's action or lack of action contributes to the causes of contract modification. Because of the nature of low bid work, a contractor may bid low to get the job and "cut corners" to avoid loss and maximize profit. Although this is a rarity if the owner has an effective contractor selection process and quality assurance program, improper bid practices still happen. The reason for this is that owners rarely have the financial and personnel resources to support the demanding screening process. In federal contracts, award is given to the lowest "responsive" bidder. Disqualifying bids based on unresponsive bidders are difficult and sometimes impossible if not properly documented. Documentation are based on past contracts and are sometimes difficult to track. The last resort for the owner if the contractor fails to substantially progress in the completion of the contract is termination for

default.

Examples of actions by contractors and subcontractors which cause change orders are: slow to mobilize on site; failure to properly plan or schedule the project or portion of the project; financial difficulty or failure to project cash flow; insufficient personnel on site or project; poor workmanship or quality of work; failure to coordinate work of subcontractors; failure to have material or equipment on site; lack of experience in that particular project type; failure to read contract; and failure to communicate.

If the project is not terminated for default (or for cause) by action or lack of action of contractor or subcontractor, delay is expected. Delay due to contractor's fault is compensated by liquidated damages or other methods of payment as stipulated in the contract.

C. "Outside" Forces - These are conditions outside or beyond the control of the owner/owner agent and contractor. "Outside" forces can be categorized as either "force majeure" or those caused by other outside entities.

(1) "Force Majeure" or acts of God. The most common examples are fires, epidemics, and unusually severe weather.

(2) Other Outside Forces. Examples of these are acts of the public enemy, acts of regulatory agencies, labor strikes, and

quarantine restrictions.

"Outside" force causes excusable contract modification to contractor and owner. Increase in cost and/or time resulting from "outside force" is shared equitably depending on the condition. A contract can be terminated for convenience by either party, e.g., in time of war; or a time extension is provided to contractor but not increased cost, e.g., labor strike.

MAJOR CAUSES OF CONTRACT MODIFICATION

A study by Mogren (1986) identified the three major causes of contract modification as being (1) design deficiencies; (2) user requested change; and (3) unknown site conditions.

A. Design Deficiencies - are caused by failure of the owner or designer to include all necessary information in the plans and specifications provided to the contractor. As Mogren discovered in his research, 56 percent of all contract modifications are to correct design specification deficiencies. Management's goal should include reduction, if not elimination, of design errors or deficiencies.

There are two types of accountability based on who is responsible for design deficiencies: (1) If the design is provided by the owner (or designer hired by the owner) to the contractor then the

owner is accountable for the increased cost. The designer could be liable for damages but is rarely pursued; and (2) If the work is conducted by a contractor who both designs and builds then the contractor is accountable and responsible for increased cost. The contractor who both designs and builds is obligated to the owner to provide a finished product that fits the purposes of the owner as described in their contract.

In the interpretation of contract documents, the specifications are given preference than plans and drawings. If there is a conflict between the plans and specifications in methods of performance or types of material to be used, the specifications hold.

Specifications use words to describe the required quantity and quality of the project. They also provide information that will help the contractor plan for contract performance and cost control, such as subsurface conditions, site access for heavy equipment, and availability of temporary utilities. They should be clear and complete and should fit together. If not, there are likely to be defects, disputes, increased costs, and litigation.

To eliminate confusion in the terminology of specifications, it is necessary to discuss briefly the types of specifications. The most common types are "design", "performance", "purchase description", and "combined design/performance specifications"

(Sweet, 1989) .

Design Specifications - state precise measurements, tolerances, materials, construction methods, sequences, quality control, inspection requirements, and other information. They tell the contractor in detail the material it must furnish and how to perform the work.

Performance Specifications - state the performance characteristics required, such as the pump will deliver fifty units per minute, a heating system will heat to 70-degree Fahrenheit within a designated time, or a wall will resist flames for a designated period. Design and measurements are not stated or considered important so long as the performance requirements are met.

Purchase Description Specifications - designate the product or equipment required by manufacturer, trade name, and type. Sometimes the contractor is given an approved list. These specifications usually increase contract cost as they limit the contractor's ability to use material or equipment that may be just as good as those specified and cost less.

Combined Design/Performance Specifications - are combination of design and performance specifications. This type is used if design specification is hard to describe but a particular outcome

or performance is desired.

In summary, "design specification" tells the contractor what it is to do and how to do it. A "purchase description specification" is even more limiting, telling the contractor that the materials and equipment it must furnish will be made by a particular manufacturer and be of designated model or type. A "performance specification" describes a specific outcome. For "combined design/performance specification", the owner has sought to tell the contractor what it must do, how it must do, and the result it must achieve.

B. User Requested Changes - are contract modifications requested by the owner as a result of changed scope of work, change in budget, and other owner actions which could result in increased or decreased contract cost. These changes include "implied" and "expressed" changes. Expressed changes are owner-intended changes, normally written, for which the owner is willing to compensate. Implied changes are changes made by the contractor based on implied actions of the owner or his agent. The costs resulting from implied changes are sometimes hard to recover because the owner may not want the changed work and argue that permission to change the work was not granted by him. A contractor is best to issue a written notice prior to initiating an implied change.

Sweet (1989) classifies owner or user requested change into three types: (1) cardinal change or scope change; (2) constructive change; and (3) minor change.

Cardinal change, as defined in earlier chapter, is an out-of-scope change or extra work not covered in the original contract. AIA and federal contracts limit out-of-scope changes up to a certain percentage or amount. AIA General Conditions limit this to percentage of the original total contract amount while federal contracts use dollar limits. Federal contracts treat cardinal change as new procurement or requirement and limitation is set by signature authority.

Constructive change applies more to federal contracts. Compensation is allowed to contractors if in the opinion of the boards of appeal (when processing claims in federal contracts) a change order or contract modification was issued by the contracting officer. The reason for this is that federal procurement disputes clauses require the contractor to keep working pending resolution of a dispute. The boards of appeal take jurisdiction over the contract and treat constructive change as a change order if it rules in favor of the contractor.

Minor change, discussed in chapter 2, is a change that is minor and within the scope of the contract. AIA Doc. A201, paragraph 7.4.1, gives the architect authority to execute a change order so

long as they are consistent with the intent of the contract documents. In federal contracts, a minor change is a unilateral change issued using the changes clause. An example of a minor change in federal contracts is administrative change.

C. Unknown Site Conditions or "differing site conditions" are unforeseen conditions resulting from poor or limited data made available to contractors during bidding. This unforeseen condition results in unforeseen work (extra work) and is generally compensable by the owner. Although applicable in both private and federal contracts, this clause plays a significant role in federal procurement. A 1982 study conducted by the Environmental Protection Agency on settled claims account 50 percent of the dollar amount is attributed to differing site conditions (EPA, 1982). Likewise, similar studies and reports (NAVFAC, 1984; Thomas et al, 1987) show about 20 to 34 percent of all claims submitted were based on differing site conditions, and more importantly, 35 to 50 percent of the dollar amounts paid to contractors in claims final settlements. Reducing unknown site conditions with adequate preliminary site investigation and careful planning remain a great challenge to project planning, design, and management.

D. OTHER CAUSES - Other conditions affect the project and result in change order. These conditions are extreme weather, strike, etc., which entitles the contractor for time extension

but not necessarily increased cost. Another example is use of Value Engineering program in the contract. If the contractor performs innovative methods of construction technique or substitute new types of material which can save substantial cost to the project, the contractor is allowed to share in the savings (normally 50 percent of savings). These conditions constitute a small percentage of contract modification. Nevertheless, it is also important to the project due to relative cost involved.

ROOT CAUSES OF CLAIMS

A claim is a by-product of disagreement in a contract. The distinct difference between claims and contract modification is that claims generally seek compensation for the impact of unsettled change. Contract modifications are settled claims (in writing) and parties generally agree to an equitable change in cost and time. To distinguish the types of claims, it is classified into six categories - constructive change, acceleration, changed conditions, schedule changes, contractual obligation, and delay claims (Callahan, 1986; Dawkins, 1987). Although some of the claims were briefly mentioned earlier, it is important to discuss them further.

Constructive change claims result from owner's actions that result in more contractor work and time, but for which the owner refuses to execute change orders. This type of claim might

include disputes over design deficiencies and owner "over-inspection" (demands by the owner for higher standards than specified).

Acceleration claims can be caused by an owner overtly demanding that a project be completed ahead of the originally scheduled completion, or from an owner's insistence that the original contract completion be met, in spite of scope changes that would normally entitle the contractor to time extensions.

Changes conditions claims occur due to differing site conditions and unforeseen work encountered.

Schedule change claims arise from suspensions, changes in sequence, or terminations of contract work. Claims of this sort include owner interference and interruptions, and owner termination of contracts due to contractor default or for owner's convenience.

Contractual obligation claims are the miscellaneous category which include refusal by the owner to take over completed work by the contractor, or early beneficial occupancy by the owner which interferes with work progress.

Delay claims are claims resulting from delay of project which can be caused by the owner, contractor, or acts of nature. This type

of claims may include both consideration for time extension or increase in cost.

It is not uncommon to see several types of claims in a large project. In one instance, a \$2 million claim was submitted in a \$5 million project (Butrym, 1990).

CHAPTER V

IMPACTS OF CONTRACT MODIFICATION

Contract changes or modifications are expected in construction contracts for reasons stated in earlier chapters. Although changes are expected, impact costs are extremely expensive and sometimes may be cost prohibitive due to limitation of funds and legislative funding limits. Extra work, corrective work, and time delay associated with change orders should be curtailed and reduced. Project management's goal should include control of contract modification or change orders. To understand the associated impacts resulting from contract modification, this chapter will look at the different impact costs of change order. The impacts resulting from change order are: (1) time delay; (2) increased costs; and (3) reduced quality.

TIME DELAY

Change order is normally measured by the project schedule or the completion date stated on the contract. If the project is completed ahead of schedule all parties benefit. The owner gets the product early and opportunity to earn revenues or gain benefits for early completion is realized. The contractor, as a result of early completion, will realize increased profit and opportunity to "move to bigger and better things". Early

completion means reduced labor cost, equipment cost, overhead cost, and other costs associated with that particular project.

On the other hand, project delay to the owner means a longer wait for new or improved facility which results in less revenues, less efficient operations, or any number of other benefits which may be lost due to lack of complete facility. To the contractor, project delay means extended overhead costs, cost escalation, and loss of future work.

In many respects, delay is an "opportunity" cost to the contractor (Dawkins, 1987). If the contractor is tied up with a lot of uncompleted work, contractor's bonding capacity is minimized due to reduced work-in-place. The contractor is normally assigned a risk factor and if he is over extended due to unfinished or delayed work, bonding surety will not allow increased bonding capacity for additional work. It is not uncommon to hear that a lot of small business contractors fold or go out of business due to unprofitable projects. Most of the projects involved incurred excessive delays.

Furthermore, time delay makes certain operations underway unproductive, thus limiting the contractor's cash flow on the job, and the contractor's capacity to fund other work. It is prudent to say that although both parties are hurt by delay caused by change order, the contractor is hurt more due to loss

of opportunity cost. In federal contracts, the Prompt Payment Act stipulates quick processing of contractor's payment for completed work to reduce financial burden on contractors and suppliers. In private industry, although no such Act applies, prompt payment of contractors, subcontractors, and suppliers is important to maintain good relationship for all parties involved.

Time delay can be compensated depending on how the contract is written or agreed upon. The costs of time delay can be categorized as "liquidated" and "actual" damages (O'Brien, 1976).

Liquidated damages are used as a special means of quantifying delay costs to expedite settlement without litigation. They are set in the contract to which the owner and contractor agree (Dawkins, 1987). Liquidated damages are normally based on historical values from similar projects recently completed. The owner uses this form to serve as his assurance; and incentive for the contractor not to delay the work.

Actual damages are actual costs resulting from project delay. It can be submitted as claims by either the owner or the contractor. Actual damages can either be "direct" or "consequential". Direct costs can include additional contract field management resulting from extended project durations of equipment use, labor and material cost escalation, and any other costs which are directly tied to project delay. Direct costs are costs incurred directly

from the project which was delayed. Consequential costs are indirect costs of the delayed project which include such items as loss of bonding capacity, limitations on workload due to limited working capital and cash flow, and opportunity costs of lost additional business resulting in profit and income loss.

TYPES OF DELAY

Delay can be categorized into four types: classic delay; serial delay; concurrent delay; and independent delay (O'Brien, 1976; Arditi et al, 1989):

Classic Delay occurs when a period of uselessness or idleness is imposed upon contractual work. An example of classic delay is a contractor who is not prepared to accomplish work as planned at a given time.

Serial Delay is a linkage or series of delays one after the other, created by one original delay. This is also called the "riffle effect" of construction delay.

Concurrent Delay occurs when both the contractor and owner cause separate delays during the same period of time. In the case of concurrent delays neither party can be held accountable or responsible for the time or cost of the resulting delay.

Independent Delay is one that occurs independently of any other delay and has no other effect on any other activity in the project.

Classic delay can be further sub-categorized into: (1) excusable/compensable; (2) excusable/noncompensable; and (3) non-excusable (Arditi et al, 1989).

Classic delays that are "excusable/compensable" are not caused by the contractor but by the owner. Examples of this type are: owner's delay in providing access to site; change in scope of work or in construction details; and wrongful termination by the owner. In this type of delay, the contractor is allowed time extension and extra cost for the losses.

Classic delays that are "excusable/noncompensable" are caused by events that are beyond the contractor's and owner's control. Examples are extreme weather, fires, flood, etc.

Classic delays that are "non-excusable" are due to contractor's inefficiency. The owner has the right to charge the contractor liquidated damages for such delays in the total project duration. Reasons for the delay may be shortage of qualified workers, technical personnel, or material; and failure to coordinate the work, i.e., deficient planning, scheduling, and supervision.

In summary, excessive change orders cause unacceptable delays. Delays are expensive to the owner and the contractor due to the associated costs. Extra time means extra expenses - labor, material equipment, overhead, etc. It is important to identify the type of delay that can result from a change order so parties responsible can compensate the extra cost to the project.

INCREASED COSTS

Increased costs result from acceleration of the contract schedule, increase in scope of work, and other owner requested change. Delay, as discussed in the previous section, is synonymous with cost increase because it can result in acceleration of the project. Acceleration means extra work and overtime to meet a milestone, e.g., project completion date; which results in extra labor, equipment rental, and other unnecessary expenses if the project would have been completed on time. Delay also as discussed earlier incurs unnecessary expenses such as extra overhead, labor, equipment rental and others.

Costs are classified as either direct or indirect costs. Direct costs are costs of actual operations. Examples are direct labor costs, equipment used on the project, and materials used directly on the project. Indirect costs are expenses required to support construction operations and which are not considered as direct field operations. Included as indirect costs are overhead,

general expense and general plant. Another indirect cost which is not reimbursed fully is home office overhead. A certain percentage of the company's total workload or a flat fee is charge to the owner.

The contractor upon receipt of the change order must evaluate the degree of the change in terms of scope of work. The contractor must also know how to determine and develop costs associated with the extra work involved. Items considered should include material costs, transportation costs, correct labor charges, the effect of the change on the project time, and the realistic and possible adverse effect of the change on other job conditions. Therefore, computation of direct costs, indirect costs, and overhead costs of the extra work should be pursued and requested. For private contracts, a reasonable profit should be added and agreed to by the owner. Changes must be processed as they occur and the method of payment should be identified as soon as possible. Allowing changes to accumulate leads to cash flow and cost control problems for the contractor.

REDUCED QUALITY

The quality of the finished product or project is hard to measure since it is done subjectively. It depends on project's conformance to design specification or owner's perception of quality. Projects plagued with excessive change orders

subsequently cause delays and owner caused acceleration. It is more likely to suffer from operational problems in the post-construction, or "user" phase of the facility life cycle (Diekman et al, 1985). Factors contributing to loss of quality include poor workmanship due to lack of expertise; low morale; errors due to rush work; errors or omissions due to deficient or poor design specifications; substitution of substandard material or equipment; and other types of actions which can result in rework and therefore change order.

Other intangible issues which can result from excessive contract change orders are: (1) relationship of parties (owner, owner agent, contractor, subcontractor and suppliers) becomes adversarial; (2) lengthy and excessive litigation; and (3) difficulty of same parties to work together in the future.

In summary, contract modification causes not only direct impact to the project (cost escalation and delay) but also indirect effects (poor quality of work, damaged contractual relationship, unsatisfied parties, low morale, etc.). The importance of reducing change orders by adequate and careful planning during pre-construction phase is as important as controlling excessive changes during the construction phase. A successful project is one where all parties benefit and win. This means partnership and teamwork which subsequently results in early/increase revenues for the owner; and pride, profit and possibility of increased

business (due to improved reputation) for the contractor.

LEGAL CONCERNS AND DISPUTES RESOLUTION

It is important that contracting parties have a basic understanding of the legal implications of claims or disputes resulting from contract changes. First, changes in the contract can be minimized but not eliminated entirely. The reason for this is that it is affected by so many variables. It is full of uncertainties like weather conditions, availability of people, accidents, etc. Completion of the project to meet budget cost, project schedule and absolute quality is difficult to predict. Second, many people are involved. Whenever you have more than one person interpreting a plan or specification you have the potential for dispute. Third, our society has become significantly more litigious and because of the traditional relationship of owner and contractor of being adversarial, dispute is certain to arise.

However, litigations are lengthy, costly and frustrating. Results are mixed and application of legal precedents from common law is very difficult to anticipate. Sometimes decisions handed down by the courts concerning similar cases are conflicting (Sweet, 1989). The reason for this is that those who make the final decisions in a court of law are not always experienced in construction practice or familiar with the industry norm. For

this reasons, litigation is equally risky to both sides even when a case is clear in the eyes of the litigating parties (Dawkins, 1987). The construction industry has resorted to alternative disputes resolution.

If a claim should arise, negotiation is the preferred method. The contractor and owner meet and discuss the issue. If an agreement is reached then the claim is resolved. If there is a disagreement and negotiation reached an impasse, depending on contract conditions the parties either go to a neutral third party for a decision or resort to litigation. A third party could either be a mediator (non-binding decision) or arbitrator (binding decision). In AIA contracts, arbitration is made part of the contract in resolving disputes. It does not rule out the use of negotiation or mediation if the issue (claim) could be settled by using this lesser formal and preferred methods of dispute resolution. Arbitration is somewhat similar to litigation because the decision rendered is final and appealable. However, the civil courts rarely overturn decisions handed down by arbitration.

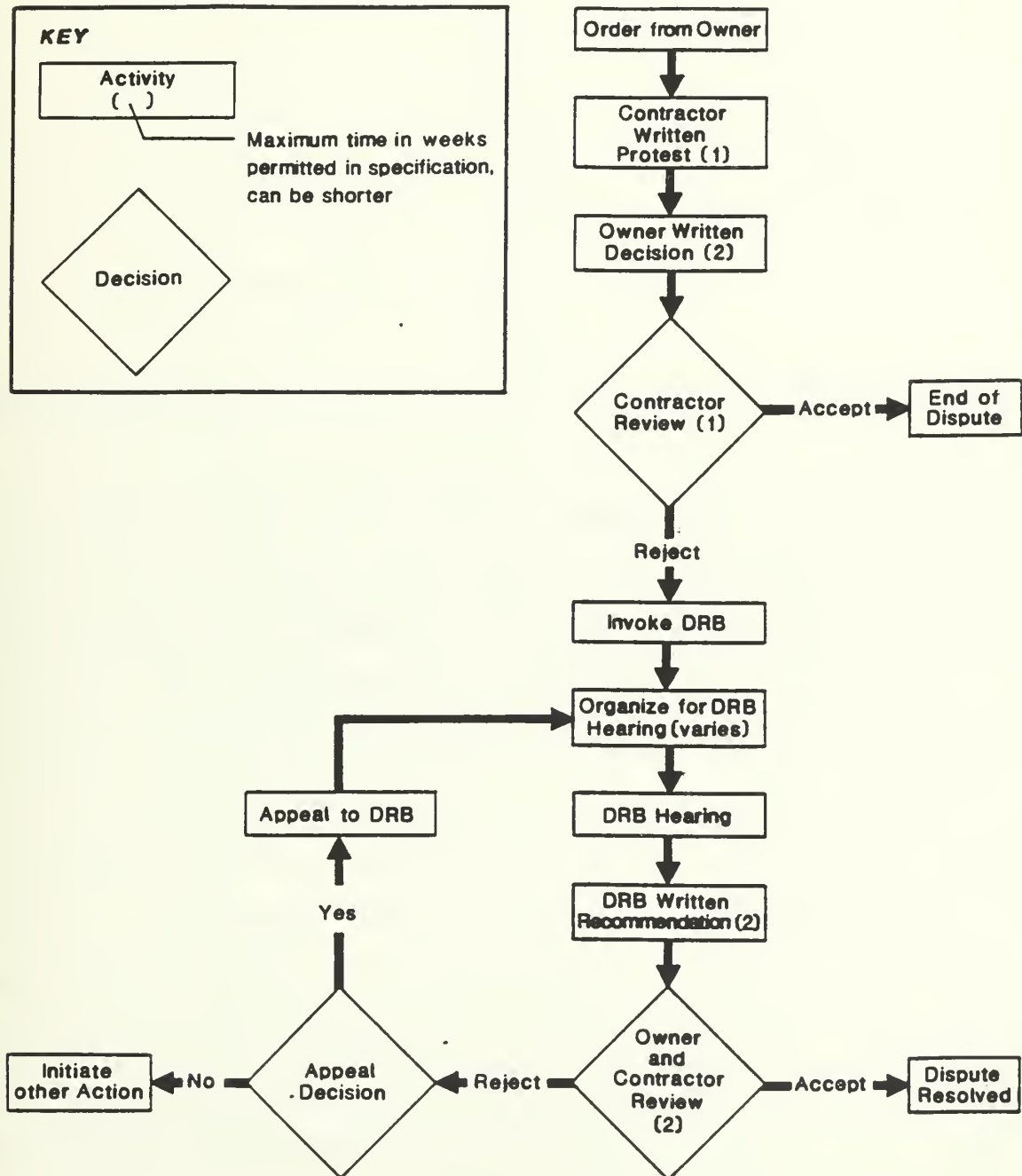
Litigation is the least preferred method of resolving a dispute. It uses the civil courts system and is a lengthy and expensive process. Sometimes a simple case could take years to settle. Litigation is also a "no-win" situation for either party. Both sides lose and shall only be used as a desperate move and last resort to resolve a dispute. Because of these reasons,

construction industry include disputes resolution as part of their contract. An example is inclusion of Disputes Resolution Board (DRB) as shown in Figure 5.1 (UTRC, 1989).

In federal contracts, claims are handled differently. A claim is submitted by the contractor to the contracting officer. If this claim is denied, the contractor can submit a formal claim and ask for contracting officer's final decision. If the contracting officer's final decision is against the contractor, the contractor can appeal either through the U.S Claims Court or the Board of Contract Appeals (BCA) established by the Agency of the Federal Government. If the contractor chooses and receives a decision from the BCA which is not acceptable to him, the BCA's decision is appealable through the Federal Appeals Court. These procedures were established to protect the legal rights of contractors doing work with the Federal Government and to lighten the load of the courts system. Unfortunately, both systems (federal and civil) are plagued with long delays and escalating costs. It is therefore recommended that should an issue arise, negotiation is the preferred method of dispute resolution.

FIGURE 5.1

DRB Process of Disputes Resolution



CHAPTER VI

A FIELD STUDY ON CONTRACT MODIFICATION

This chapter includes an analysis of Navy construction contracts at Naval Air Station (NAS) Atlanta, Georgia; NAS Jacksonville, Florida; NAS Cecil Field, Florida; and Naval Station (NAVSTA) Mayport, Florida. The field study compliments the literary section of this research.

PURPOSE OF STUDY

The primary reason for the field study is to have an independent review of the causes and impacts of construction contract modifications with respect to time and costs. Navy construction contracts were selected due to familiarity of the author on the subject. It was felt that doing the study on the subject one is familiar with is an advantage in ease of data collection and information collected tends to be complete and reliable. Another reason in selecting federal contracts is that because of the competitive nature of low bid price contracts, especially for federal contracts, contractors are more prone to seek claims or consideration for payment for extra work even for minor deviation from contract documents.

Other reasons for the study are to compare results with other

studies (Diekman et al, 1985; Dawkins, 1987); to determine the relationship of the type of construction (new work, repair, and equipment installation) and contract modification; and to serve as supporting data for conclusions to be made in later chapter.

THE DATA

There are two sets of data obtained from the field. The first collection of data (Appendix G) is a combined list of projects from Resident Officer-in-Charge of Construction (ROICC) Jacksonville, Florida which handles procurement and contract administration of construction projects for three Naval installation (NAS Jacksonville, NAS Cecil Field and NAVSTA Mayport). Numerous projects are listed on this list; however, the important section for this study are projects with at least 100 percent work-in-place (WIP). The data will be manipulated and sorted. Results are presented as tables 6.1 through 6.5 with analysis to follow the tables.

The second data base (Appendix H) is a collection of 21 projects of various construction type and work scope. The data base will be sorted and manipulated to look at the relationship of government estimate to lowest bidder, frequency of contract modification, causes of modification and contract modification's impact to time (delay) and price (total project cost). Results are presented as tables 6.6 through 6.8. Analysis of the results

will follow the tables.

To assist in understanding the tables, the following reason codes are presented. These codes correspond to the root causes of contract modification.

<u>REASON CODE</u>	<u>ROOT CAUSE OF CHANGE ORDER</u>
HDQT	Headquarters Directed Change
CLMR	Formal Claims Settlement
CREQ	Discretionary Owner Change
CRIT	Mandatory Owner Change
DSGN	Design Error Change
SCPE	Scope Change (Extra Work or Deduction)
TIME	Time Extension
UNFO	Differing Site Conditions
VALE	Value Engineering
ADMN	Administrative Change

"Headquarters Directed Change" is a change required by higher authority, e.g., increasing square footage in the enlisted barracks to enhance quality of life as required by headquarters.

"Formal Claims Settlement" is a settlement occurring from formal claims (written claims to be decided by contracting officer or the appeals court). A contract modification is issued to change the contract and/or project schedule (time extension).

"Discretionary Owner Change" is a change requested by the user of the facility within the scope of the contract. Changing roofing material, changing location of a door and upgrading of equipment are examples of this change.

"Mandatory Owner Change" is a required change due to a change in government regulation or codes. An example of this change is the requirement of providing handicap access to second floor of a federal building.

"Design Error Change" is a change resulting from a design error or design deficiency.

"Scope Change" is an out-of-scope change. This change results from an increase (or decrease) in project scope. An example of scope change is increasing the square footage of a building which causes subsequent increase in project cost.

"Time Extensions" are given to contractor for excusable delays such as time extensions resulting from delays due to strike or extreme weather.

"Differing Site Conditions" are changes resulting from unforeseen or unknown conditions, e.g., contractor discovering asbestos material during a repair project and is not shown on the plans and specifications. Another example is finding different soil

conditions than what is reflected in soil test samples.

"Value Engineering" is a change resulting from cost saving measures by the contractor. This is a measure submitted by the contractor to deviate from the plan or introduction of new construction technique which results in reduction of total project amount. Savings are shared by the contractor and the owner on a percentage basis as agreed upon in the contract.

"Administrative Change" is a minor change and issued as a unilateral contract. Examples of administrative change are change in assignment of construction representative and typographical error on a document.

DATA BASE I (APPENDIX G)

Table 6.1 is a list of projects obtained from Appendix G that contains at least 100 percent work-in-place (WIP). Projects are over 100 percent WIP if changes to the contract involved an increase in work scope. The projects are categorized as small, small/medium, medium and large depending on the contract award cost. A project is small if the contract amount is under \$200,000; small/medium for projects between \$200,000 and <\$1 million; medium if project is \$1 million up to \$5 million; and large if project is over \$5 million. The reason for this classification is to study the relationship of contract amount

and frequency of modification. Previous study conducted by Diekman (1985) did not involve projects below \$200,000.

TABLE 6.1

PROJECTS WITH AT LEAST 100 PERCENT
WORK-IN-PLACE

CONTRACT NO.	AWARD AMOUNT(\$)	NO. MODS.	% TIME	% COST
76-0781	4,188,384	11	99.9	100.1
81-0111	6,673,000	42	177.8	112.7
81-0850	7,867,000	22	176.0	115.0
82-0332	2,850,000	15	119.5	103.4
83-0216	9,665,000	50	129.0	111.5
83-3484	299,065	5	366.1	100.0
84-0283	15,262,000	46	101.0	103.0
84-0356	779,445	3	217.3	100.0
84-0625	4,142,000	13	326.4	102.4
84-0628	533,770	7	147.6	127.9
85-0544	185,600	1	198.6	95.9
85-0636	369,700	4	207.8	111.9
86-0011	683,306	15	170.5	113.6
86-0089	4,094,000	27	149.4	103.5
86-0090	3,741,000	11	145.3	103.2
86-2468	2,440,000	15	100.0	109.1
86-2475	346,400	5	156.8	107.4
87-0164	229,101	0	141.5	100.0
87-2429	729,150	5	136.2	114.4
87-2436	1,951,000	1	120.0	97.3
87-2495	145,774	4	200.0	108.6
88-0643	224,138	1	368.0	102.5
88-0719	169,790	2	93.8	103.7
88-2472	174,553	6	125.1	102.7
88-6110	696,222	5	107.6	102.1
88-6114	51,600	2	161.0	103.0
88-6215	203,370	1	176.6	104.2
88-6229	198,322	7	100.0	118.1
89-0611	68,917	1	140.2	111.0
89-2435	141,290	0	143.3	100.0
89-2439	527,900	2	119.6	105.7
89-2441	41,300	1	232.9	117.8
89-2444	161,481	0	105.0	100.0
89-2477	167,377	4	91.6	112.2
89-2491	185,000	0	117.6	100.0
89-2499	8,600	0	230.0	100.0
89-6111	68,000	0	135.6	100.0
89-6204	98,760	0	106.4	100.0
89-6212	464,000	1	135.8	102.4
89-6228	67,000	1	100.0	98.9
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TOTAL - 40	70,892,315	336		
AVERAGE/PROJECT -	1,772,308	8.4		

Analysis of Table 6.1:

(1) 5 out of 40 projects (or 12.5 percent) completed on time or ahead of schedule. In a different tone, 87.5 percent of projects did not finish on time. The conclusion is that majority of projects (especially in federal construction contracts) may not finish on time and adequate cushion on completion dates has to be considered or added. If completion dates are critical, the customer has to include that requirement prior to bidding and has to expect to pay for the subsequent increase in cost. Contractors allow certain percentage for factor of safety if completion dates have to be guaranteed. This gives the contractor assurance for increased cost in case of acceleration.

(2) 12 out of 40 projects (or 30 percent) met the original contract amount. 70 percent of projects went over budget. Contingency fund is recommended for construction contracts due to many factors affecting costs. As will be shown in the next four tables, 5 to 10 percent is recommended as contingency fund.

TABLE 6.2

SMALL PROJECTS (<\$200,000)

<u>CONTRACT NO.</u>	<u>NO. MODS.</u>	<u>% TIME</u>	<u>% COST</u>
85-0544	1	198.6	95.9
87-2495	4	200.0	108.6
88-0719	2	93.8	103.7
88-2472	6	125.1	102.7
88-6114	2	161.0	103.0
88-6229	7	100.0	118.1
89-0611	1	140.2	111.1
89-2435	0	143.3	100.0
89-2441	1	232.9	117.8
89-2444	0	105.0	100.0
89-2477	4	91.6	112.2
89-2491	0	117.6	100.0
89-2499	0	230.0	100.0
89-6111	0	135.6	100.0
89-6204	0	106.4	100.0
89-6228	1	100.0	98.9
-----	---	-----	-----
TOTAL - 16	29	2281.1	1672.0
AVERAGE/PROJECT -	1.8	142.6	104.5

TABLE 6.3

SMALL/MEDIUM PROJECTS

(\$200,000 TO < \$1 MILLION)

<u>CONTRACT NO.</u>	<u>NO. MODS.</u>	<u>% TIME</u>	<u>% COST</u>
83-3484	5	366.1	100.0
84-0356	3	217.3	100.0
84-0628	7	147.6	127.9
85-0636	4	207.8	111.9
86-0011	15	170.5	113.6
86-2475	5	156.8	107.4
87-0164	0	141.5	100.0
87-2429	5	136.2	114.4
88-0643	1	368.0	102.5
88-6110	5	107.6	102.1
88-6215	1	176.6	104.2
89-2439	2	119.6	105.7
89-6212	1	135.8	102.4
-----	---	-----	-----
TOTAL - 13	54	2451.4	1392.1
AVERAGE/PROJECT -	4.2	188.6	107.1

TABLE 6.4

MEDIUM PROJECTS

(\$1 MILLION TO \$5 MILLION)

<u>CONTRACT NO.</u>	<u>NO. MODS.</u>	<u>% TIME</u>	<u>% COST</u>
76-0781	11	99.9	100.1
82-0332	15	119.5	103.4
84-0625	13	326.4	102.4
86-0089	27	149.4	103.5
86-0090	11	145.3	103.2
86-2468	15	100.0	109.1
87-2436	1	120.0	97.3
-----	---	-----	-----
TOTAL - 7	93	1060.5	719.0
AVERAGE/PROJECT -	13.3	151.5	102.7

TABLE 6.5

LARGE PROJECTS

(OVER \$5 MILLION)

<u>CONTRACT NO.</u>	<u>NO. MODS.</u>	<u>% TIME</u>	<u>% COST</u>
81-0111	42	177.8	112.7
81-0850	22	176.0	115.0
83-0216	50	129.0	111.5
84-0283	46	101.0	103.0
-----	---	-----	-----
TOTAL - 4	160	583.8	442.2
AVERAGE/PROJECT -	40.0	146.0	110.6

Analysis of Tables 6.2 through 6.5

(1) Frequency of contract modification increases with increase in contract amount. As projects become larger, scope and degree of work become more complicated and subsequently result in more change orders. This finding supports earlier studies by Diekman and Dawkins.

(2) No relationship was noticed between categories of contract amount (small, small/medium, etc.) and time (delay to project schedule). Although all four categories showed increase in time, no significant variation was noticed. As will be discussed later in the next set of data, the relationship of contract modification and time varies from project to project and not with cost of the project.

(2) No relationship was noticed between categories of contract amount and contract award amount. All categories show increase in project amount but no proportionality was noticed.

DATA BASE II (APPENDIX H)

Tables 6.6 through 6.8 represent 21 projects of various sizes and construction types from four Naval installations - NAS Atlanta, NAS Jacksonville, NAS Cecil Field and NAVSTA Mayport. Table 6.6 is the summary list of the projects (construction contracts).

Table 6.7 shows the comparison of government estimate and award amount with respect to frequency of contract modification. Table 6.8 shows the root causes of contract modification. The relationship of contract modification and contract amount will not be duplicated in this set of data.

TABLE 6.6

LIST OF SAMPLE POPULATION

CONTRACT NUMBER	GOVERNMENT ESTIMATE	BID AMOUNT	NUMBER MODS.	TIME (DAYS)	COST INCREASE
89-3087	\$ 56,900	\$ 46,475	3	79	\$ (813)
88-3069	660,967	473,947	3	52	24,055
86-2388	133,607	109,257	2	257	43,234
84-0322	265,000	176,928	5	120	43,123
87-6332	145,184	121,774	2	90	1,593
88-2470	286,273	253,660	2	88	22,439
88-2431	330,000	229,086	4	7	14,176
87-2522	193,447	130,000	1	230	27,500
89-2427	641,780	645,707	9	94	81,388
89-2477	192,276	167,377	4	0	20,440
81-0924	N/A	4,888,000	18	57	204,069
82-0332	2,629,306	2,878,608	15	395	96,426
76-0781	N/A	4,148,000	11	159	43,767
86-0927	N/A	1,289,720	4	15	23,980
89-0185	N/A	3,897,000	10	126	268,621
87-0011	2,450,000	2,795,955	13	144	79,698
86-2468	2,628,000	2,884,000	15	475	219,444
84-0625	N/A	4,142,000	13	72	181,407
83-0216	N/A	9,665,000	51	608	834,831
85-0012	N/A	12,990,000	37	279	611,241
81-0850	7,434,000	7,867,000	22	0	1,126,603
21		59,799,494	244	3,347	3,967,222

TABLE 6.7

RELATIONSHIP OF GOVERNMENT ESTIMATE
AND LOW BID AMOUNT

A. BID AWARD UNDER GOVERNMENT ESTIMATE

<u>CONTRACT NO.</u>	<u>NO. MODS.</u>	<u>% GOVT. EST.</u>
89-3087	3	81.7
88-3069	3	71.7
86-2388	2	81.8
84-0322	5	66.8
87-6332	2	83.9
88-2470	2	88.6
88-2431	4	69.4
87-2522	1	67.2
89-2477	4	87.1
-----	-----	-----
TOTAL - 9	26	698.2
AVERAGE/PROJECT	2.9	77.6

B. BID AWARD OVER GOVERNMENT ESTIMATE

<u>CONTRACT NO.</u>	<u>NO. MODS.</u>	<u>% GOVT. EST.</u>
89-2427	9	100.6
82-0331	15	109.5
87-0011	13	114.1
86-2468	15	109.7
81-0850	22	105.8
-----	-----	-----
TOTAL - 5	74	539.7
AVERAGE/PROJECT	14.8	107.9

Analysis of Tables 6.6 and 6.7

(1) It appears that for small size contracts (<\$500,000), the low bidder submits bid below the government estimate. Low bids vary from 67.2 to 88.6 percent from the government estimate. The disparity in the variation of low bid amount to government estimate is caused by fierce competition and more definitive work scopes in small size contracts.

(2) For large size contracts (>\$500,000), the low bidder tends to be higher than the government estimate. Award bids vary from 100.6 to 114.1 percent of government estimate. Compared to small size contracts, there is a big variation in the percentage.

3. One area to look at was the relationship of government estimate and frequency of contract modification. Because of the small sample size, no relationship was noticed.

4. Although not clearly visible on Table 6.6, contracts 84-0625, Aircraft Training Facility; 83-0216, Barracks Repair and Improvements; 85-0012, Navy Exchange and Commissary; and 85-0850, Data Processing Center are projects involving new work, repair, new work and special equipment installation respectively. By the frequency of contract modification, repair work has a higher degree of changes in the contract. The point is that if the project involves repair of an old facility, the owner, the

architect and the contractor need to be cautious - the owner with his finances; the architect with site investigation; and the contractor by reading the contract carefully to make sure he is protected in case of differing site conditions.

TABLE 6.8

ROOT CAUSES OF CONTRACT
MODIFICATION

REASON	FREQ	%	TIME	%	COST INCREASE	%
-----	----	-----	-----	-----	-----	-----
HDQT	2	0.8	0	0.0	\$ 4,994	0.1
CLMR	1	0.4	0	0.0	9,316	0.2
CREQ	38	15.6	300	9.0	1,316,441	33.2
CRIT	3	1.2	36	1.0	20,670	0.5
DSGN	103	42.2	1,433	42.8	1,757,802	44.3
SCPE	3	1.2	0	0.0	6.832	0.2
TIME	8	3.3	462	13.8	0	0.0
UNFO	62	25.4	1,056	31.6	852,641	21.5
VALE	1	0.4	60	1.8	(1,474)	(0.0)
	----	-----	-----	-----	-----	-----
TOTAL -	244	100.0	3,347	100.0	3,967,222	100.0

Analysis of Table 6.8

(1) In terms of frequency of contract modification, the most common root causes are design error change (42.2%), unforeseen conditions (25.4%) and discretionary owner request (15.6%).

(2) Design error change (42.8%) and unforeseen conditions (31.6%) caused the major reasons for project delay.

(3) Design error change (44.3%), discretionary owner request (33.2%) and unforeseen conditions (21.5%) caused significant increase to project costs.

The study concludes that minus time extension, unforeseen conditions and value engineering, the frequency of contract modification is owner related which accounts to 61.4%. Second, time extension is owner's prerogative but it is interesting to note that owner related changes cause for time delay accounts for 52.8% or over half the time. If you include unforeseen condition with that, it is even more and goes to 84.4%. Third, the most important result is that owner related changes account for 78.5% of increased cost.

In summary, the findings here support earlier studies that design error, unforeseen condition and owner request (discretionary and mandatory) are the major causes of contract modification (change

order) and contribute immensely to final cost and time. As will be discussed and concluded in the next chapter, most of these causes can be avoided prior to project execution.

CHAPTER VII

RECOMMENDATIONS AND CONCLUSIONS

The literary search, field interviews and field study lead to the conclusion that the major causes of contract modification which contributes to significant increase in project cost and delay are design error, user or owner requested changes (include mandatory, headquarters directed and discretionary), and unforeseen or unknown site conditions. These three root causes of contract modifications accounted for a total of 97.1 percent in frequency, 84.4 percent in time delay, and close to 100 percent in increased project cost in the field study.

RECOMMENDATIONS

First, A significant number of contract modifications (even some unforeseen work) can be avoided during the pre-construction phase (planning and design stage) of a project's life cycle. Whenever possible, especially in the private sector, "designs can be enhanced tremendously by bringing in the contractor as part of the construction team during the design stage" (Dawkins, 1987; Rosser, 1989). The IBM Tower at Atlanta is a perfect example of this practice which was completed well ahead of schedule and within budget considering a fast paced construction schedule on a very tight work site (Dawkins, 1987).

In public sector, it may not be possible to have a contractor do a constructibility review prior to award due to restrictions on bid work. Procedures to reduce design error and omissions are being conducted such as formal review process of plans and specifications, pre-bid conferences and quality management program during design. The Army Corps of Engineer on their military construction (MILCON) projects conducts technical design reviews; and biddability, constructibility and operability (BCO) reviews during the design phase (Kirby et al, 1988). Proper review not only substantially reduces change orders but results in reduced maintenance and operating costs throughout the life of the facility.

The formal review process, as shown as Figure 7.1 (Kirby et al, 1988) is controlled and coordinated by a design project manager. Design reviews are undertaken separately by engineering, construction and operations personnel. Each group views the design on a different perspective, with a particular bias, and contributes its unique expertise in order to produce a quality design package. These important improvements in design review resulted in smaller percentage in design error (comparing prior studies with this field study). Nevertheless, it still accounts for a significant number of contract modifications and further improvements are required. Methods like the BCO reviews and quality design management program can not be overemphasized. Even with only constructibility reviews, 6-23 percent savings will be

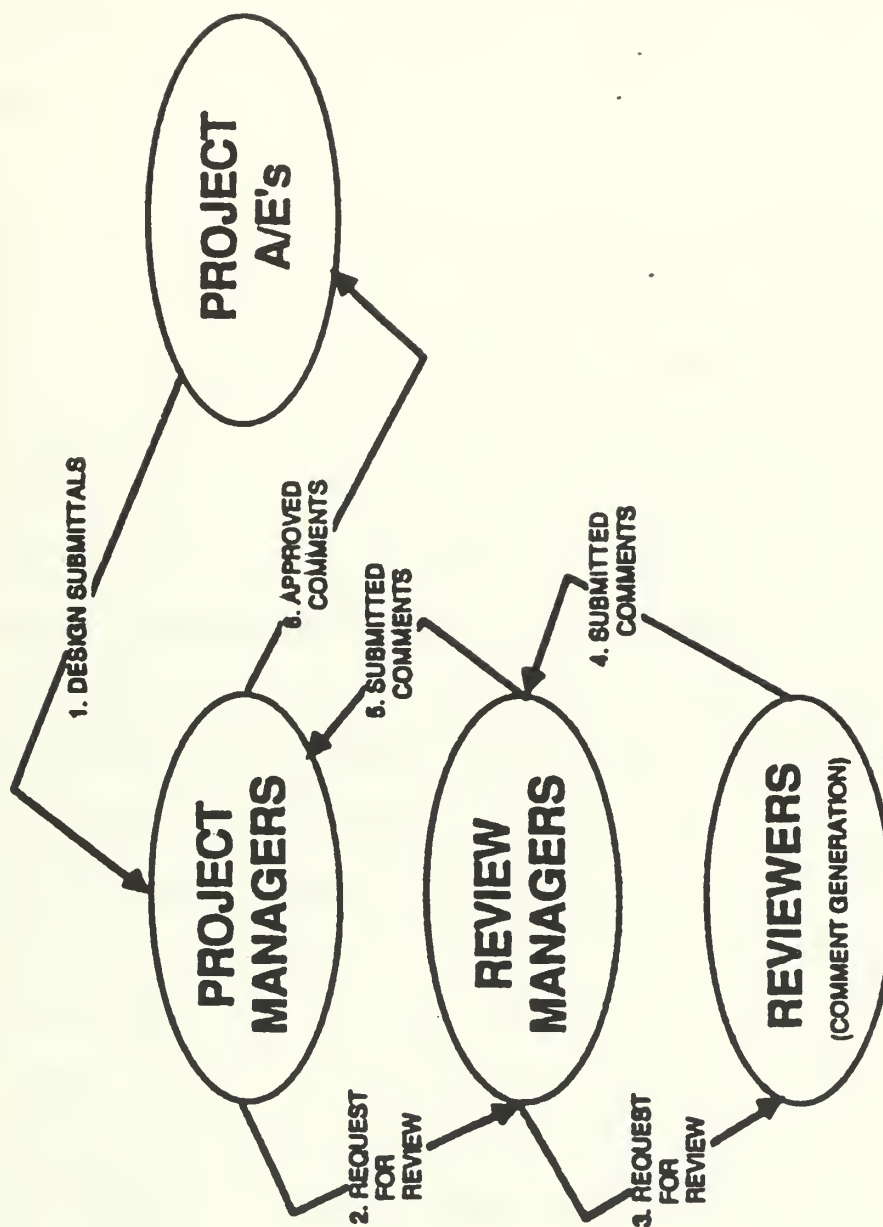


FIGURE 7.1 - DESIGN REVIEW PROCESS

realized on final project cost from original estimate(CII, 1986). It is in the best interest of the owner to have a thorough design review because the opportunity for cost savings is significantly higher during the early stage of the project's life cycle (Shah et al, 1984).

Second, the owner and his agents are critical players throughout the life cycle of the project. In the planning and design stage, the owner who properly identifies his needs (work scope) will eliminate extra work during the construction stage. Although this can be difficult to ascertain due to difficulty sometime of visualizing plans to real buildings, the owner (or his agents) has to devote special attention to the specifications and to provide time and effort during the early stage of project's life cycle. The owner's role does not end there. He also has to be involved during the construction phase of the project. A knowledgeable owner recognizes that he must involve himself in his project, either through his own staff or by retaining a construction manager if he does not have the staff available (O'Brien, 1976). The extra expense to hire a reliable engineer (or construction manager) more than compensate for the possibility of cost overrun and delay resulting from an uninformed owner.

Defects that are latent will not show during regular inspection of projects. It is in the interest of the owner to concern

himself with latent defects if it shows during post-construction phase to avoid him paying for repair or rework which the contractor is liable in the first place. Failure of the owner to bring discrepancies to the attention of the contractor promptly may waive his rights if there is statute of limitation. In summary, greater emphasis is needed during the design phase.

Third, having effective communication during all phases of construction is extremely important if not the most critical aspect of construction. During the early stage of the project (design phase), the owner must clearly communicate his intentions to avoid omissions or extra work if the project scope was understated. During construction, the contractor must quickly communicate any problems encountered to avoid contention of claims which will delay the processing or not paid for the extra work. The longer the problem is resolved, the more expensive and difficult it is to settle. As experienced by management, most claims result from "poor communication in plans and specifications, and during project construction" (Mitchell, 1990).

The owner's agent - architect, inspector or construction manager, must be careful in corrections ordered at the field. Their actions can be construed as a change and the owner will be liable to pay for extra cost resulting from extra work (constructive change). Other comments such as suggestions to hasten project if

project is behind schedule may be misunderstood as acceleration when the contractor in fact is excused for the delay, e.g., severe weather.

Another form of communication which is as important as oral communication is written communication. Proper documentation of the project is consequential necessity. Since claims in general are unavoidable, adequate records will assist in quick processing and payment of claims. One concept for the contractor is "documenting for management" (Stokes, 1985). The contractor keeps records of the project with management (the owner) in mind. This may require more work to the contractor since this involves an on-the-job recordkeeping system but the benefits are justified. Possible benefits include reduction of possible claims (owner is aware of progress of project) and enough proper documentation is available should a claim arise (contractor is paid full cost and not subject to challenge). The key is to account for the progress of the project through the current set of plans and specifications, scheduling technique, shop drawings and all other documents which control the performance of the contract. This should include a complete listing of changes, both approved and unapproved.

Processing of changes should be done quickly and routinely. Accumulation of change orders will lead to large and out-of-control construction problems and, therefore, large and out-of-

control claims. Records may include invoices, purchase orders, receipts, employees wages, job-site log or superintendent's record, photographs (and/or videos), and all correspondence between owner and contractor including notes or memos to file of discussions of meetings and telephone conversations. A practice which deserves consideration is by use of "confirming letter". Copies of memos to file is provided to the owner to serve as agreement to written version of the conversation and written record.

Fourth, projects have to be scheduled, controlled and monitored by both parties. Although briefly mentioned in the last paragraph, the owner and the contractor have to have in place some form of monitoring system. This will serve at least two purposes, i.e., to track project milestones and provide management with the data required to assess progress and make decisions. Computer aided project scheduling programs are now available to print schedules, work breakdown structures, and other documents/reports necessary to assist contractors, project managers and owners to assess progress of projects. These documents will also serve as supporting records for settling disputes or claims. This not only provides management with a visual representation of project schedule and work-in-place but also provides a quick analysis of alternatives should the schedule or work scope changes.

In summary, contract modification can be minimized if the owner emphasizes quality review of plans and specifications making sure all his requirements and needs are reflected; the owner gets involved directly or indirectly with the project throughout its life cycle; owner and contractor maintaining effective means of communication (avoid adversarial relationship); and partnership and teamwork of both parties to keep the project under control (budget and time).

CONCLUDING COMMENTS

The study reflects the causes of contract modification in public and private sector; identified the distinct differences of terms used in private and federal contracts; quantified the effects of change order to time and cost based on prior studies and field study; and provided recommendations on how to correct and reduce contract modifications. The public sector generally prefers the use of bid lump sum (fixed price) projects due to ease in controlling cost and administration of the contract.

Public funds when made available are normally limited. Bid projects serve as a check and balance to prevent over-obligation of limited public funds; and more importantly, it is assured of a usable facility. The risks are put on contractor's side and therefore it can be construed as an unfair method of awarding projects. Relationships between owner and contractor are normally

adversarial especially if the owner is not accommodating to contractor's ideas or proposals.

"Cost plus a fee" contracts may be an alternative but due to problems in administering this type of contract, the public owner is forced to use bid work. Some of possible risks in cost plus contracts are: poor supervision by contractors; poor supervision by owner; too many changes; more susceptible to delay and project drag-out; poor subcontracting and purchasing; expensive contractor rates; lack of real time-control mechanisms; and poor productivity (Kirby et al, 1988). These risks can make projects uncontrollable. However, some Services are using cost plus contracts for quick results. In Charleston, S.C., the Navy was devastated with millions of dollar damage after hurricane Hugo in 1988. Cost plus contracts were used to repair and bring facilities back to operating condition. Over \$120 million was spent for various construction projects with excellent success. Completion is scheduled for next year which exceeds the Navy's expectation. The program will be completed within budget and well ahead of schedule (Bowlin, 1990).

In conclusion, it is realized that the three major causes of contract modifications which can result in uncontrollable contract are design deficiency, owner-directed change, and unforeseen site conditions. It has been said that with careful review of plans and specifications, maintaining effective levels

of communication, and active role of owner and contractor to work as a team and partner throughout the project's life cycle will significantly save the project in time and cost.

FUTURE RESEARCH

The field study was limited to federal contracts not by choice but because of difficulty in obtaining fiscal matters from civilian companies. It is recommended that for future research, a study is conducted that will explore the major causes and effects of change orders in private contracts. Another possible research topic which relates to change orders is the study of cost plus contracts at the Navy bases at Charleston, South Carolina. Completion of the Hugo Repair Program is scheduled for completion in 1991 and this is the best time and opportunity to gather historical file and information, and to conduct field interviews.

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APPENDIX A

SELECTED FEDERAL CONTRACT CLAUSES

(ENTIRE CLAUSE)

APPENDIX A

SELECTED FEDERAL CONTRACT CLAUSES

CHANGES CLAUSE

Section 52.243-4 of FAR for fixed-price construction contracts states that:

CHANGES (AUG 1987)

- (a) The Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes-
 - (1) In the specifications (including drawings and designs);
 - (2) In the method or manner of performance of the work;
 - (3) In the Government-furnished facilities, equipment, materials, services, or site; or
 - (4) Directing acceleration in the performance of the work.
- (b) Any written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances, and the source of the order and (2) that the Contractor regards the order as a change order.
- (c) Except as provided in this clause, no order, statement, or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.
- (d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in

writing. However, except for an adjustment based on defective specifications, no adjustment for any change under paragraph (b) of this clause shall be made for any costs incurred more than 20 days before the Contractor gives written notice as required. In the case of defective specifications for which the Government is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with defective specifications.

- (e) The Contractor must assert its right to an adjustment under this clause within 30 days (see note (1)) after (1) receipt of a written change order under paragraph (a) of this clause or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting to the Contracting Officer a written statement describing the general nature and amount of the proposal, unless this period is extended by the Government. The statement of proposal for adjustment may be included in the notice under paragraph (b) above.
- (f) No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

Note: (1) The 30-day period as stipulated in this clause may be varied according to agency procedures.

SUSPENSION OF WORK CLAUSE

Section 52.212-12 of FAR for fixed price construction contracts states that:

SUSPENSION OF WORK (APR 1984)

- (a) The Contracting Officer may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government.
- (b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified in this contract (or

within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract.

- (c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from suspension of work), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

DEFAULT CLAUSE

Section 52.249-10 of FAR states that:

DEFAULT (FIXED-PRICE CONSTRUCTION) (APR 1984)

- (a) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract including any extension, or fails to complete the work within this time, the Government may, by written notice to the Contractor, terminate the right to proceed with the work (or separable part of the work) that has been delayed. In this event, the Government may take over the work and complete it by the contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Government resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. The liability includes any increased costs

incurred by the Government in completing the Work.

- (b) The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause, if-
 - (1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God or of public enemy, (ii) acts of the Government in either its sovereign or contractual capacity, (iii) acts of another Contractor in the performance of a contract with the Government, (iv) fires, (v) flood, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without fault or negligence of both the Contractor and the subcontractors or suppliers; and
 - (2) The Contractor within 10 days from the beginning of any delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of the delay. The Contracting Officer shall ascertain the facts and extent of delay. If, in the judgement of the Contracting Officer, the findings of fact warrant such action, the time for completing the work shall be extended. The findings of the Contracting Officer shall be final and conclusive on the parties, but subject to appeal under the Disputes clause.
- (c) If after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the Government.
- (d) The rights and remedies of the Government in this clause are in addition to any other rights and remedies provided by law or under this contract.

TERMINATION FOR CONVENIENCE

Section 52.249-2 of FAR applies to fixed price construction

contracts over \$100,000. A shorter clause is used for contracts under this amount.

TERMINATION FOR CONVENIENCE OF THE GOVERNMENT
(FIXED PRICE) (APR 1984)

- (a) The Government may terminate performance of work under this contract in whole or, from time to time, in part if the Contracting Officer determines that a determination is in the Government's interest. The Contracting Officer shall terminate by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.
- (b) After receipt of Notice of Termination, and except as directed by the Contracting Officer, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:
 - (1) Stop work as specified in this notice.
 - (2) Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the contract.
 - (3) Terminate all subcontracts to the extent they relate to the work terminated.
 - (4) Assign to the Government, as directed by the Contracting Officer, all right, title, and interest of the Contractor under the subcontracts terminated in which case the Government shall have the right to settle or pay any termination settlement proposal arising out of those terminations.
 - (5) With approval or ratification to the extent required by the Contracting Officer, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts; the approval or ratification will be final for purposes of this clause.
 - (6) As directed by the Contracting Officer, transfer title and deliver to the Government (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or for the work terminated, and (ii) the completed or partially completed plans, drawings, information, and other property that, if the contract had been completed, would be required to be furnished to the Government.
 - (7) Complete performance of the work not terminated.
 - (8) Take any action that may be necessary, or that the Contracting Officer may direct, for the protection

and preservation of the property related to this contract that is in the possession of the Contractor and in which the Government has or may acquire an interest.

- (9) Use its best efforts to sell, as directed or authorized by the Contracting Officer, any property of the types referred to in subparagraph (6) above; provided, however, that the Contractor (i) is not required to extend credit to any purchaser and (ii) may acquire the property under the conditions prescribed by, and at prices approved by, the Contracting Officer. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by the Government under this contract, credited to the price or cost of the work, or paid in any other manner directed by the Contracting Officer.
- (c) After expiration of the plant clearance period as defined in Subpart 45.6 of the Federal Acquisition Regulation, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of termination inventory not previously disposed of, excluding items authorized for the disposition by the Contracting Officer. The Contractor may request the Government to remove those items or enter into an agreement for their storage. Within 15 days, the Government will accept title to those items and remove them or enter into a storage agreement. The Contracting Officer may verify the list upon removal of the items, or if stored, within 45 days from submission of the list, and shall correct the list, as necessary, before final settlement.
- (d) After termination, the Contractor shall submit a final settlement proposal to the Contracting Officer in the form and with the certification prescribed by the Contracting Officer. The Contractor shall submit the proposal promptly, but no later than 1 year from effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 1-year period. However, if the Contracting Officer determines that the facts justify it, a termination settlement proposal may be received and acted on after 1 year or any extension. If the Contractor fails to submit the proposal within the time allowed, the Contracting Officer may determine, on the basis of information available, the amount, if any, due the Contractor because of the termination and shall pay the amount determined.
- (e) Subject to paragraph (d) above, the Contractor and the

Contracting Officer may agree upon the whole or any part of the amount to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. However, the agreed amount, whether under this paragraph (e) or paragraph (f) below, exclusive of costs shown in subparagraph (f)(3) below may not exceed the total contract price as reduced by (a) the amount of payments previously made and (2) the contract price of work terminated. The contract shall be amended, and the Contractor limit, restrict, or affect the amount that may be agreed upon to be paid under this paragraph.

(f) If the Contractor and Contracting Officer fail to agree on the whole amount to be paid the Contractor because of the termination of work, the Contracting Officer shall pay the Contractor the amounts determined as follows, but without duplication of any amounts agreed upon under paragraph (e) above:

(1) For contract work performed before the effective date of termination, the total (without duplication of any items) of-

- (i) The cost of this work;
- (ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the contract if not included in subdivision (i) above; and
- (iii) A sum, as profit on (i) above, determined by the Contracting Officer under 49.202 of the Federal Acquisition Regulation, in effect on the date of this contract, to be fair and reasonable; however, if it appears that the Contractor would have sustained a loss on the entire contract had it been completed, the Contracting Officer shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.

(2) The reasonable costs of settlement of the work terminated, including-

- (i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;
- (ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and
- (iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of

termination inventory.

- (g) Except for normal spoilage, and except to the extent that the Government expressly assumed the risk of loss, the Contracting Officer shall exclude from the amounts payable to the Contractor under paragraph (f) above, the fair value, as determined by the Contracting Officer, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the Government or to a buyer.
- (h) The cost principles and procedures of Part 31 of the Federal Acquisition Regulation, in effect on the date of this contract, shall govern all costs claimed, agreed to, or determined under this clause.
- (i) The Contractor shall have right of appeal, under the Disputes clause, from any determination made by the Contracting Officer under paragraph (d), (f), or (k), except that if the Contractor failed to submit the termination settlement proposal within the time provided in paragraph (d) or (k), and failed to request a time extension, there is no right of appeal. If the Contracting Officer has made a determination of the amount due under paragraph (d), (f), or (k), the Government shall pay the Contractor (1) the amount determined by the Contracting Officer if there is no right of appeal or if no timely appeal has been taken, or (2) the amount finally determined on an appeal.
- (j) In arriving at the amount due the Contractor under this clause, there shall be deducted-
 - (1) All unliquidated advance or other payments to the Contractor under the terminated portion of this contract;
 - (2) Any claim which the Government has against the Contractor under this contract; and
 - (3) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to the Government.
- (k) If the termination is partial, the Contractor may file a proposal with the Contracting Officer for an equitable adjustment of the price(s) of the continued portion of the contract. The Contracting Officer shall make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within 90 days from the effective date of termination unless extended in writing by the

Contracting Officer.

- (1) (1) The Government may under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract, if the Contracting Officer believes the total of these payments will not exceed the amount to which the Contractor will be entitled.
- (2) If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to the Government upon demand, together with interest computed at the rate established by the Secretary of the Treasury under 50 U.S.C. App.1215(b)(2). Interest shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or other disposition of termination inventory until 10 days after the date of the retention or disposition, or a later date determined by the Contracting Officer because of the circumstances.
- (m) Unless otherwise provided in this contract or by statute, the Contractor shall maintained all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make this records and documents available to the Government, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Contracting Officer, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents.

APPENDIX B

LIST OF FEDERAL CONTRACT CLAUSES

CONSTRUCTION CONTRACT

(SEALED BIDDING PROCEDURES)

CONTRACT CLAUSES
CONSTRUCTION CONTRACT
(SEALED BIDDING PROCEDURES)

CLAUSES INCORPORATED BY REFERENCE (OCT 1988). This contract incorporates the following clauses by reference, with the same force and effect as if they were given full text. Upon request, the Contracting Officer will make their full text available.

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES (FAR). (FAR 52.252.2)

(END OF CLAUSE)

1. FAR 52.202-1, Definitions (APR 1984) - Alternate I (APR 1984)
2. FAR 52.203-1, Officials Not To Benefit (APR 1984)
3. FAR 52.203-3, Gratuities (APR 1984)
4. FAR 52.203-5, Covenant Against Contingent Fees (APR 1984)
5. FAR 52.203-7, Anti-Kickback Procedures (FEB 1987)
6. FAR 52.204-2, Security Requirements (APR 1984) - Alternate II (APR 1984)
7. FAR 52.212-5, Liquidated Damages - Construction (APR 1984)
8. FAR 52.212-6, Time Extensions (APR 1984)
9. FAR 52.212-8, Defense Priority and Allocation Requirements (MAY 1986)
10. FAR 52.212-11, Variation in Estimated Quantity (APR 1984)
11. FAR 52.212-12, Suspension of Work (APR 1984)
12. FAR 52.214-26, Audit-Sealed Bidding (APR 1985)
(Applicable if award exceeds \$100,000)
13. FAR 52.214-27, Price Reduction for Defective Cost or Pricing Data - Modification - Sealed Bidding (APR 1985)
(Applicable if award exceeds \$100,000)
14. FAR 52.214-28, Subcontractor Cost or Pricing Data - Modifications - Sealed Bidding (APR 1985)
(Applicable if award exceeds \$100,000)
15. FAR 52.219-6, Notice of Total Small Business Set Aside (APR 1984)
16. FAR 52.219-8, Utilization of Small Business Concerns and Small Disadvantaged Business Concerns (APR 1984)
(Applicable if award exceeds \$10,000)

17. FAR 52.219-9, Small Business and Small Disadvantaged Business Sub-contracting Plan Alternate I (APR 1984) (Applicable if award exceeds \$1,000,000)
18. FAR 52.219-13, Utilization of Women-Owned Small Business (AUG 1986) (Applicable if award exceeds \$25,000)
19. FAR 52.220-3, Utilization of Labor Surplus Area Concerns (APR 1984)
20. FAR 52.220-4, Labor Surplus Area Subcontracting Program (APR 1984) (Applicable if award exceeds \$500,000)
21. FAR 52.222-1, Notice to the Government of Labor Disputes (APR 1984)
22. FAR 52.222-3, Convict Labor (APR 1984)
23. FAR 52.222-4, Contract Work Hours and Safety Standards Act - Overtime Compensation (MAR 1986)
24. FAR 52.222-6, Davis Bacon Act (FEB 1988)
25. FAR 52.222-7, Withholding of Funds (FEB 1988)
26. FAR 52.222-8, Payrolls and Basic Records (FEB 1988)
27. FAR 52.222-9, Apprentices and Trainees (FEB 1988)
28. FAR 52.222-10, Compliance with Copeland Act Requirements (FEB 1988)
29. FAR 52.222-11, Subcontracts (Labor Standards) (FEB 1988)
30. FAR 52.222-12, Contract Termination-Debarment (FEB 1988)
31. FAR 52.222-13, Compliance with Davis-Bacon and Related Act Regulation (FEB 1988)
32. FAR 52.222-14, Disputes Concerning Labor Standards (FEB 1988)
33. FAR 52.222-15, Certification of Eligibility (FEB 1988)
34. FAR 52.222-26, Equal Opportunity (APR 1984)
35. FAR 52.222-27, Affirmative Action Compliance Requirements for Construction (APR 1984) (Applicable if award exceeds \$10,000)
36. FAR 52.222-2B, Equal Opportunity Preaward Clearance of Subcontracts (APR 1984) (Applicable if award exceeds \$1,000,000)
37. FAR 52.222-35, Affirmative Action for Special Disabled and Vietnam Era Veterans (APR 1984) (Applicable if award exceeds \$10,000)

38. FAR 52.222-36, Affirmative Action for Handicapped Workers (APR 1984)
(Applicable if award exceeds \$2,500)
39. FAR 52.222-37, Employment Reports on Special Disabled Veterans and
Veterans of the Vietnam Era (JAN 1988)
40. FAR 52.223-2, Clean Air and Water (APR 1984)
(Applicable if award exceeds \$100,000)
41. FAR 52.223-3, Hazardous Material Identification and Material Safety
Data (APR 1984)
42. FAR 52.225-5, Buy American Act - Construction Materials (APR 1984)
43. FAR 52.225-12, Restrictions on Federal Public Works Projects
Certification (APR 1988)
44. FAR 52.225-13, Restrictions of Federal Public Works Projects (APR
1988)
45. FAR 52.227-1, Authorization and Consent (APR 1984)
46. FAR 52.227-2, Notices and Assistance Regarding Patent & Copyright
Infringement (APR 1984)
(Applicable if award exceeds \$25,000)
47. FAR 52.227-4, Patent Indemnity - Construction Contracts (APR 1984)
48. FAR 52.228-1, Bid Guarantee (APR 1984)
(Applicable if award exceeds \$25,000)
49. FAR 52.228-2, Additional Bond Security (APR 1984)
50. FAR 52.228-5, Insurance-Work on a Government Installation (APR 1984)
(Applicable if award exceeds \$25,000)
51. FAR 52.229-3, Federal, State, and Local Taxes (APR 1984) (Applicable
if award exceeds \$25,000)
52. FAR 52.232-5, Payments under Fixed-Price Construction Contracts (APR
1989)
53. FAR 52.232-17, Interest (APR 1984)
54. FAR 52.232-23, Assignment of Claims (JAN 1986)
(Applicable if award exceeds \$1,000)
55. FAR 52,232-25, Prompt Payment - Alternate I (FEB 1988)
56. FAR 52.233-1, Disputes (APR 1984)

57. FAR 52.233-3, Protest After Award (JUN 1985)
58. FAR 52.236-2, Differing Site Conditions (APR 1984)
59. FAR 52.236-3, Site Investigation and Conditions Affecting the Work (APR 1984)
60. FAR 52.236-5, Material and Workmanship (APR 1984)
61. FAR 52.236-6, Superintendence by the Contractor (APR 1984)
62. FAR 52.236-7, Permits and Responsibilities (APR 1984)
63. FAR 52.236-8, Other Contracts (APR 1984)
64. FAR 52.236-9, Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements (APR 1984)
65. FAR 52.236-10, Operations and Storage Areas (APR 1984)
66. FAR 52.236-11, Use and Possession Prior to Completion (APR 1984)
67. FAR 52.236-12, Cleaning Up (APR 1984)
68. FAR 52.236-13, Accident Prevention (APR 1984) - Alternate I (APR 1984)
69. FAR 52.236-14, Availability and Use of Utility Services (APR 1984)
70. FAR 52.236-15, Schedules for Construction Contracts (APR 1984)
(Applicable if award exceeds \$25,000)
71. FAR 52.236-17, Layout of Work (APR 1984)
72. FAR 52.236-21, Specifications and Drawings for Construction (APR 1984)
73. FAR 52.243-4, Changes (AUG 1987)
(Applicable if award exceeds \$25,000)
74. FAR 52.244-1, Subcontracts (Fixed-Price Contracts) (APR 1985)
(Applicable if award exceeds \$500,000)
75. FAR 52.245-1, Property Records (APR 1984)
76. FAR 52.245-2, Government Property (Fixed-Price Contract) (APR 1984)
(Applicable is Government Furnished Property Exceeds \$50,000 in value)

77. FAR 52.245-3, Identification of Government Furnished Property (APR 1984)
78. FAR 52.245-4, Government-Furnished Property (Short Form) (APR 1984)
(Applicable if Government Furnished Property is less than \$50,000 in value)
79. FAR 52.246-12, Inspection of Construction (JUL 1986)
80. FAR 52.246-21, Warranty of Construction (APR 1984) - Alternate I (APR 1984)
81. FAR 52.247-64, Preference for Privately Owned U. S. Flag Commercial Vessels (APR 1984) (Alternate II) (APR 1984)
82. FAR 52.248-3, Value Engineering-Construction (APR 1984)
(Applicable if award exceeds \$100,000)
83. FAR 52.249-1, Termination for Convenience of the Government (Fixed Price) (Short Form) (APR 1984)
(Applicable if award is less than \$100,000)
84. FAR 52.249-2, Termination for Convenience of the Government (Fixed-Price) (APR 1984) - Alternate I (APR 1984)
(Applicable if award exceeds \$100,000)
85. FAR 52.249-10, Default (Fixed-Price Construction) (APR 1984)

II. DEPARTMENT OF DEFENSE FEDERAL ACQUISITION REGULATION SUPPLEMENT (DFARS)
CLAUSES INCORPORATED BY REFERENCE

86. DFARS 52.219-7000, Small Business and Small Disadvantaged Business Subcontracting Plan (Master Plans) (APR 1984)
87. DFARS 52.225-7012, Preference for Domestic Specialty Metals (OCT 1980)
88. DFARS 52.225-7024, Restriction on Contracting with Toshiba Corporation or Kongsberg Vapenfabrikk (MAR 1988)
89. DFARS 52.231-7000, Supplemental Cost Principles (APR 1984)
(Applicable if award exceeds \$25,000)
90. DFARS 52.233-7000, Certification of Requests for Adjustment or Relief Exceeding \$100,000 (FEB 1980)
(Applicable if award exceeds \$100,000)
91. DFARS 52.236-7000, Composition of Contractor (JAN 1965)

92. DFARS 52.236-7001, Modification of Proposals - Price Breakdown (APR 1968)
93. DFARS 52.236-7002, Contract Drawings, Maps and Specifications (SEP 1987)
94. DFARS 52.236-7005, Salvage Materials and Equipment (JAN 1965)
95. DFARS 52.236-7006, Misplaced Material (JAN 1965)
96. DFARS 52.242-7003, Certification of Indirect Costs (APR 1986)
97. DFARS 52.243-7001, Pricing of Adjustments (APR 1984)

APRIL 1989

CONTRACT CLAUSES
CONSTRUCTION CONTRACT
(SEALED BIDDING PROCEDURES)

I. CLAUSES INCORPORATED BY FULL TEXT. The following clauses are added to the contract clauses.

1. LIMITATIONS ON SUBCONTRACTING (OCT 1987). By submission of an offer and execution of a contract, the Offeror/Contractor agrees that in performance of the contract in the case of a contract for--

a. Services (except construction). At least 50 percent of the cost of contract performance incurred for personnel shall be expended for employees of the concern.

b. Supplies (other than procurement from a regular dealer in such supplies). The concern shall perform work for at least 50 percent of the cost of manufacturing the supplies, not including the cost of materials.

c. General construction. The concern will perform at least 15 percent of the cost of the contract, not including the cost of materials, with its own employees.

d. Construction by special trade contractors. The concern will perform at least 25 percent of the cost of the contract, not including the cost of materials, with its own employees.

FAR 52.219-14

2. DRUG-FREE WORKPLACE (MAR 1989)

a. Definitions. As used in this clause,

"Controlled substance" means a controlled substance in schedule I through V of section 202 of the Controlled Substances Act (21 U.S.C. 812) and as further defined in regulation at 21 CFR 1308.11 - 1308.15.

"Conviction" means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the Federal or State criminal drug statutes.

"Criminal drug statute" means a Federal or non-Federal criminal statute involving the manufacture, distribution, dispensing, possession or use of any controlled substance.

APRIL 1989

"Drug-free workplace" means a site for the performance of work done in connection with a specific contract at which employees of the contractor are prohibited from engaging in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance.

"Employee" means an employee of a contractor directly engaged in the performance of work under a Government contract.

"Individual" means an offeror/contractor that has no more than one employee including the offeror/contractor.

(b) The Contractor, if other than an individual, shall-

(1) Publish a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;

(2) Establish a drug-free awareness program to inform such employees about--

(i) The dangers of drug abuse in the workplace;

(ii) The contractor's policy of maintaining a drug-free workplace;

(iii) Any available drug counseling, rehabilitation, and employee assistance programs; and

(iv) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.

(3) Provide all employees engaged in performance of the contract with a copy of the statement required by subparagraph (b) (1) of this clause;

(4) Notify such employees in the statement required by subparagraph (b) (1) of this clause, that as a condition of continued employment on this contract, the employee will--

(i) Abide by the terms of the statement; and

(ii) Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.

(5) Notify the contracting officer within ten (10) days after receiving notice under subdivision (a) (4) (ii) of this clause, from an employee or otherwise receiving actual notice of such conviction;

APRIL 1989

(6) Within 30 days after receiving notice under subparagraph (a) (4) of this clause of a conviction, impose the following sanctions or remedial measures on any employee who is convicted of drug abuse violations occurring in the workplace:

(i) Taking appropriate personnel action against such employee, up to and including termination; or

(7) Make a good faith effort to maintain a drug-free workplace through implementation of subparagraph (b) (1) through (b) (5) of this clause.

(c) The Contractor, if an individual, agrees by award of the contract or acceptance of a purchase order, not to engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in the performance of this contract.

(d) In addition to other remedies available to the Government, the Contractor's failure to comply with the requirements of paragraph (b) of this clause may, pursuant to FAR 23.506, render the contractor subject to suspension of contract payments, termination of the contract for default, and suspension or debarment.

(End of Clause)

A COMPLETE REPRESENTATIONS AND CERTIFICATIONS IS TO BE RETURNED WITH THE BID.

APPENDIX C

AIA DOCUMENT A101
STANDARD FORM OF AGREEMENT BETWEEN
OWNER AND CONTRACTOR
(STIPULATED SUM CONTRACT)



AIA Document A101

Standard Form of Agreement Between Owner and Contractor

*where the basis of payment is a
STIPULATED SUM*

1987 EDITION

*THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES; CONSULTATION WITH
AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS COMPLETION OR MODIFICATION.*

*The 1987 Edition of AIA Document A201, General Conditions of the Contract for Construction, is adopted
in this document by reference. Do not use with other general conditions unless this document is modified.*

This document has been approved and endorsed by The Associated General Contractors of America.

AGREEMENT

made as of the
Nineteen Hundred and

day of

in the year of

BETWEEN the Owner:

(Name and address)

and the Contractor:

(Name and address)

The Project is:

(Name and location)

The Architect is:

(Name and address)

The Owner and Contractor agree as set forth below.

Copyright 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, ©1987 by The American Institute of Architects, 1735 New York Avenue, N.W., Washington, D.C. 20006. Reproduction of the material herein or substantial quotation of its provisions without written permission of the AIA violates the copyright laws of the United States and will be subject to legal prosecution.

ARTICLE 1

THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement; these form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9.

ARTICLE 2

THE WORK OF THIS CONTRACT

The Contractor shall execute the entire Work described in the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others, or as follows:

ARTICLE 3

DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

3.1 The date of commencement is the date from which the Contract Time of Paragraph 3.2 is measured, and shall be the date of this Agreement, as first written above, unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

Unless the date of commencement is established by a notice to proceed issued by the Owner, the Contractor shall notify the Owner in writing not less than five days before commencing the Work to permit the timely filing of mortgages, mechanic's liens and other security interests.

3.2 The Contractor shall achieve Substantial Completion of the entire Work not later than

(Insert the calendar date or number of calendar days after the date of commencement. Also insert any requirements for earlier Substantial Completion of certain portions of the Work, if not stated elsewhere in the Contract Documents.)

, subject to adjustments of this Contract Time as provided in the Contract Documents.

(Insert provisions, if any, for liquidated damages relating to failure to complete on time.)

ARTICLE 4
CONTRACT SUM

4.1 The Owner shall pay the Contractor in current funds for the Contractor's performance of the Contract the Contract Sum of _____ Dollars (\$ _____), subject to additions and deductions as provided in the Contract Documents.

4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If decisions on other alternates are to be made by the Owner subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date until which that amount is valid.)

4.3 Unit prices, if any, are as follows:

ARTICLE 5

PROGRESS PAYMENTS

5.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

5.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

5.3 Provided an Application for Payment is received by the Architect not later than the _____ day of a month, the Owner shall make payment to the Contractor not later than the _____ day of the _____ month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than _____ days after the Architect receives the Application for Payment.

5.4 Each Application for Payment shall be based upon the Schedule of Values submitted by the Contractor in accordance with the Contract Documents. The Schedule of Values shall allocate the entire Contract Sum among the various portions of the Work and be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This Schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

5.5 Applications for Payment shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

5.6 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

5.6.1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Sum allocated to that portion of the Work in the Schedule of Values, less retainage of _____ percent (_____ %). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included as provided in Subparagraph 7.3.7 of the General Conditions even though the Contract Sum has not yet been adjusted by Change Order;

5.6.2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of _____ percent (_____ %);

5.6.3 Subtract the aggregate of previous payments made by the Owner; and

5.6.4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Paragraph 9.5 of the General Conditions.

5.7 The progress payment amount determined in accordance with Paragraph 5.6 shall be further modified under the following circumstances:

5.7.1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to _____ percent (_____ %) of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work and unsettled claims; and

5.7.2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Subparagraph 9.10.3 of the General Conditions.

5.8 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Subparagraphs 5.6.1 and 5.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

ARTICLE 6

FINAL PAYMENT

Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when (1) the Contract has been fully performed by the Contractor except for the Contractor's responsibility to correct nonconforming Work as provided in Subparagraph 12.2.2 of the General Conditions and to satisfy other requirements, if any, which necessarily survive final payment; and (2) a final Certificate for Payment has been issued by the Architect; such final payment shall be made by the Owner not more than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

ARTICLE 7

MISCELLANEOUS PROVISIONS

7.1 Where reference is made in this Agreement to a provision of the General Conditions or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

7.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

(Usury laws and requirements under the Federal Truth in Lending Act, similar state and local consumer credit laws and other regulations at the Owner's and Contractor's principal places of business, the location of the Project and elsewhere may affect the validity of this provision. Legal advice should be obtained with respect to deletions or modifications, and also regarding requirements such as written disclosures or waivers.)

7.3 Other provisions:

ARTICLE 8

TERMINATION OR SUSPENSION

8.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of the General Conditions.

8.2 The Work may be suspended by the Owner as provided in Article 14 of the General Conditions.

ARTICLE 9
ENUMERATION OF CONTRACT DOCUMENTS

- 9.1** The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated as follows:
- 9.1.1** The Agreement is this executed Standard Form of Agreement Between Owner and Contractor, AIA Document A101, 1987 Edition.
- 9.1.2** The General Conditions are the General Conditions of the Contract for Construction, AIA Document A201, 1987 Edition.
- 9.1.3** The Supplementary and other Conditions of the Contract are those contained in the Project Manual dated , and are as follows:

Document	Title	Pages
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- 9.1.4** The Specifications are those contained in the Project Manual dated as in Subparagraph 9.1.3, and are as follows:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Pages
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9.1.5 The Drawings are as follows, and are dated

(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

unless a different date is shown below:

Number	Title	Date
--------	-------	------

9.1.6 The Addenda, if any, are as follows:

Number	Date	Pages
--------	------	-------

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

9.1.7 Other documents, if any, forming part of the Contract Documents are as follows:

(List here any additional documents which are intended to form part of the Contract Documents. The General Conditions provide that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

This Agreement is entered into as of the day and year first written above and is executed in at least three original copies of which one is to be delivered to the Contractor, one to the Architect for use in the administration of the Contract, and the remainder to the Owner.

OWNER

CONTRACTOR

(Signature)

(Signature)

(Printed name and title)

(Printed name and title)

APPENDIX D

AIA DOCUMENT A111
STANDARD FORM OF AGREEMENT BETWEEN
OWNER AND CONTRACTOR
(COST OF THE WORK PLUS FEE)



AIA Document A111

Standard Form of Agreement Between Owner and Contractor

*where the basis of payment is the
COST OF THE WORK PLUS A FEE
with or without a Guaranteed Maximum Price*

1987 EDITION

*THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES; CONSULTATION WITH
AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS COMPLETION OR MODIFICATION.*

*The 1987 Edition of AIA Document A201, General Conditions of the Contract for Construction, is adopted
in this document by reference. Do not use with other general conditions unless this document is modified.*

This document has been approved and endorsed by The Associated General Contractors of America.

AGREEMENT

made as of the
Nineteen Hundred and

day of

in the year of

BETWEEN the Owner:
(Name and address)

and the Contractor:
(Name and address)

the Project is:
(Name and address)

the Architect is:
(Name and address)

The Owner and Contractor agree as set forth below.

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ARTICLE 1

THE CONTRACT DOCUMENTS

1.1 The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement; these form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 16. If anything in the other Contract Documents is inconsistent with this Agreement, this Agreement shall govern.

ARTICLE 2

THE WORK OF THIS CONTRACT

2.1 The Contractor shall execute the entire Work described in the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others, or as follows:

ARTICLE 3

RELATIONSHIP OF THE PARTIES

3.1 The Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with the Owner to cooperate with the Architect and utilize the Contractor's best skill, efforts and judgment in furthering the interests of the Owner; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best way and most expeditious and economical manner consistent with the interests of the Owner. The Owner agrees to exercise best efforts to enable the Contractor to perform the Work in the best way and most expeditious manner by furnishing and approving in a timely way information required by the Contractor and making payments to the Contractor in accordance with requirements of the Contract Documents.

ARTICLE 4

DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

4.1 The date of commencement is the date from which the Contract Time of Subparagraph 4.2 is measured; it shall be the date of this Agreement, as first written above, unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

Unless the date of commencement is established by a notice to proceed issued by the Owner, the Contractor shall notify the Owner in writing not less than five days before commencing the Work to permit the timely filing of mortgages, mechanic's liens and other security interests.

4.2 The Contractor shall achieve Substantial Completion of the entire Work not later than

(Insert the calendar date or number of calendar days after the date of commencement. Also insert any requirements for earlier Substantial Completion of certain portions of the Work, if not stated elsewhere in the Contract Documents.)

, subject to adjustments of this Contract Time as provided in the Contract Documents.

(Insert provisions, if any, for liquidated damages relating to failure to complete on time.)

ARTICLE 5
CONTRACT SUM

5.1 The Owner shall pay the Contractor in current funds for the Contractor's performance of the Contract the Contract Sum consisting of the Cost of the Work as defined in Article 7 and the Contractor's Fee determined as follows:

(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee, and explain how the Contractor's Fee is to be adjusted for changes in the Work.)

5.2 GUARANTEED MAXIMUM PRICE (IF APPLICABLE)

5.2.1 The sum of the Cost of the Work and the Contractor's Fee is guaranteed by the Contractor not to exceed

Dollars (\$ _____),

subject to additions and deductions by Change Order as provided in the Contract Documents. Such maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.

(Insert specific provisions if the Contractor is to participate in any savings.)

5.2.2 The Guaranteed Maximum Price is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates, but only if a Guaranteed Maximum Price is inserted in Subparagraph 5.2.1. If decisions on other alternates are to be made by the Owner subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date until which that amount is valid.)

5.2.3 The amounts agreed to for unit prices, if any, are as follows:

(State unit prices only if a Guaranteed Maximum Price is inserted in Subparagraph 5.2.1.)

ARTICLE 6

CHANGES IN THE WORK

6.1 CONTRACTS WITH A GUARANTEED MAXIMUM PRICE

6.1.1 Adjustments to the Guaranteed Maximum Price on account of changes in the Work may be determined by any of the methods listed in Subparagraph 7.3.3 of the General Conditions.

6.1.2 In calculating adjustments to subcontracts (except those awarded with the Owner's prior consent on the basis of cost plus a fee), the terms "cost" and "fee" as used in Clause 7.3.3.3 of the General Conditions and the terms "costs" and "a reasonable allowance for overhead and profit" as used in Subparagraph 7.3.6 of the General Conditions shall have the meanings assigned to them in the General Conditions and shall not be modified by Articles 5, 7 and 8 of this Agreement. Adjustments to subcontracts awarded with the Owner's prior consent on the basis of cost plus a fee shall be calculated in accordance with the terms of those subcontracts.

6.1.3 In calculating adjustments to this Contract, the terms "cost" and "costs" as used in the above-referenced provisions of the General Conditions shall mean the Cost of the Work as defined in Article 7 of this Agreement and the terms "fee" and "a reasonable allowance for overhead and profit" shall mean the Contractor's Fee as defined in Paragraph 5.1 of this Agreement.

6.2 CONTRACTS WITHOUT A GUARANTEED MAXIMUM PRICE

6.2.1 Increased costs for the items set forth in Article 7 which result from changes in the Work shall become part of the Cost of the Work, and the Contractor's Fee shall be adjusted as provided in Paragraph 5.1.

6.3 ALL CONTRACTS

6.3.1 If no specific provision is made in Paragraph 5.1 for adjustment of the Contractor's Fee in the case of changes in the Work, or if the extent of such changes is such, in the aggregate, that application of the adjustment provisions of Paragraph 5.1 will cause substantial inequity to the Owner or Contractor, the Contractor's Fee shall be equitably adjusted on the basis of the Fee established for the original Work.

ARTICLE 7

COSTS TO BE REIMBURSED

7.1 The term Cost of the Work shall mean costs necessarily incurred by the Contractor in the proper performance of the Work. Such costs shall be at rates not higher than the standard paid at the place of the Project except with prior consent of the Owner. The Cost of the Work shall include only the items set forth in this Article 7.

7.1.1 LABOR COSTS

7.1.1.1 Wages of construction workers directly employed by the Contractor to perform the construction of the Work at the site or, with the Owner's agreement, at off-site workshops.

7.1.1.2 Wages or salaries of the Contractor's supervisory and administrative personnel when stationed at the site with the Owner's agreement.

(If it is intended that the wages or salaries of certain personnel stationed at the Contractor's principal or other offices shall be included in the Cost of the Work, identify in Article 14 the personnel to be included and whether for all or only part of their time.)

7.1.1.3 Wages and salaries of the Contractor's supervisory or administrative personnel engaged, at factories, workshops or on the road, in expediting the production or transportation of materials or equipment required for the Work, but only for that portion of their time required for the Work.

7.1.1.4 Costs paid or incurred by the Contractor for taxes, insurance, contributions, assessments and benefits required by law or collective bargaining agreements and, for personnel not covered by such agreements, customary benefits such as sick leave, medical and health benefits, holidays, vacations and pensions, provided such costs are based on wages and salaries included in the Cost of the Work under Clauses 7.1.1.1 through 7.1.1.3.

7.1.2 SUBCONTRACT COSTS

Payments made by the Contractor to Subcontractors in accordance with the requirements of the subcontracts.

7.1.3 COSTS OF MATERIALS AND EQUIPMENT INCORPORATED IN THE COMPLETED CONSTRUCTION

7.1.3.1 Costs, including transportation, of materials and equipment incorporated or to be incorporated in the completed construction.

7.1.3.2 Costs of materials described in the preceding Clause 7.1.3.1 in excess of those actually installed but required to provide reasonable allowance for waste and for spoilage. Unused excess materials, if any, shall be handed over to the Owner at the completion of the Work or, at the Owner's option, shall be sold by the Contractor; amounts realized, if any, from such sales shall be credited to the Owner as a deduction from the Cost of the Work.

7.1.4 COSTS OF OTHER MATERIALS AND EQUIPMENT, TEMPORARY FACILITIES AND RELATED ITEMS

7.1.4.1 Costs, including transportation, installation, maintenance, dismantling and removal of materials, supplies, temporary facilities, machinery, equipment, and hand tools not customarily owned by the construction workers, which are provided by the Contractor at the site and fully consumed in the performance of the Work; and cost less salvage value on such items if not fully consumed, whether sold to others or retained by the Contractor. Cost for items previously used by the Contractor shall mean fair market value.

7.1.4.2 Rental charges for temporary facilities, machinery, equipment, and hand tools not customarily owned by the construction workers, which are provided by the Contractor at the site, whether rented from the Contractor or others, and costs of transportation, installation, minor repairs and replacements, dismantling and removal thereof. Rates and quantities of equipment rented shall be subject to the Owner's prior approval.

7.1.4.3 Costs of removal of debris from the site.

7.1.4.4 Costs of telegrams and long-distance telephone calls, postage and parcel delivery charges, telephone service at the site and reasonable petty cash expenses of the site office.

7.1.4.5 That portion of the reasonable travel and subsistence expenses of the Contractor's personnel incurred while traveling in discharge of duties connected with the Work.

7.1.5 MISCELLANEOUS COSTS

7.1.5.1 That portion directly attributable to this Contract of premiums for insurance and bonds.

7.1.5.2 Sales, use or similar taxes imposed by a governmental authority which are related to the Work and for which the Contractor is liable.

7.1.5.3 Fees and assessments for the building permit and for other permits, licenses and inspections for which the Contractor is required by the Contract Documents to pay.

7.1.5.4 Fees of testing laboratories for tests required by the Contract Documents, except those related to defective or nonconforming Work for which reimbursement is excluded by Subparagraph 13.5.3 of the General Conditions or other provisions of the Contract Documents and which do not fall within the scope of Subparagraphs 7.2.2 through 7.2.4 below.

7.1.5.5 Royalties and license fees paid for the use of a particular design, process or product required by the Contract Documents; the cost of defending suits or claims for infringement of patent rights arising from such requirement by the Contract Documents; payments made in accordance with legal judgments against the Contractor resulting from such suits or claims and payments of settlements made with the Owner's consent; provided, however, that such costs of legal defenses, judgment and settlements shall not be included in the calculation of the Contractor's Fee or of a Guaranteed Maximum Price, if any, and provided that such royalties, fees and costs are not excluded by the last sentence of Subparagraph 3.17.1 of the General Conditions or other provisions of the Contract Documents.

7.1.5.6 Deposits lost for causes other than the Contractor's fault or negligence.

7.1.6 OTHER COSTS

7.1.6.1 Other costs incurred in the performance of the Work if and to the extent approved in advance in writing by the Owner.

7.2 EMERGENCIES: REPAIRS TO DAMAGED, DEFECTIVE OR NONCONFORMING WORK

The Cost of the Work shall also include costs described in Paragraph 7.1 which are incurred by the Contractor:

7.2.1 In taking action to prevent threatened damage, injury or loss in case of an emergency affecting the safety of persons and property, as provided in Paragraph 10.3 of the General Conditions.

7.2.2 In repairing or correcting Work damaged or improperly executed by construction workers in the employ of the Contractor, provided such damage or improper execution did not result from the fault or negligence of the Contractor or the Contractor's foremen, engineers or superintendents, or other supervisory, administrative or managerial personnel of the Contractor.

7.2.3 In repairing damaged Work other than that described in Subparagraph 7.2.2, provided such damage did not result from the fault or negligence of the Contractor or the Contractor's personnel, and only to the extent that the cost of such repairs is not recoverable by the Contractor from others and the Contractor is not compensated therefor by insurance or otherwise.

7.2.4 In correcting defective or nonconforming Work performed or supplied by a Subcontractor or material supplier and not corrected by them, provided such defective or nonconforming Work did not result from the fault or neglect of the Contractor or the Contractor's personnel adequately to supervise and direct the Work of the Subcontractor or material supplier, and only to the extent that the cost of correcting the defective or nonconforming Work is not recoverable by the Contractor from the Subcontractor or material supplier.

ARTICLE 8

COSTS NOT TO BE REIMBURSED

8.1 The Cost of the Work shall not include:

8.1.1 Salaries and other compensation of the Contractor's personnel stationed at the Contractor's principal office or offices other than the site office, except as specifically provided in Clauses 7.1.1.2 and 7.1.1.3 or as may be provided in Article 14.

8.1.2 Expenses of the Contractor's principal office and offices other than the site office.

8.1.3 Overhead and general expenses, except as may be expressly included in Article 7.

8.1.4 The Contractor's capital expenses, including interest on the Contractor's capital employed for the Work.

8.1.5 Rental costs of machinery and equipment, except as specifically provided in Clause 7.1.4.2.

8.1.6 Except as provided in Subparagraphs 7.2.2 through 7.2.4 and Paragraph 13.5 of this Agreement, costs due to the fault or negligence of the Contractor, Subcontractors, anyone directly or indirectly employed by any of them, or for whose acts any of them may be liable, including but not limited to costs for the correction of damaged, defective or nonconforming Work, disposal and replacement of materials and equipment incorrectly ordered or supplied, and making good damage to property not forming part of the Work.

8.1.7 Any cost not specifically and expressly described in Article 7.

8.1.8 Costs which would cause the Guaranteed Maximum Price, if any, to be exceeded.

ARTICLE 9

DISCOUNTS, REBATES AND REFUNDS

9.1 Cash discounts obtained on payments made by the Contractor shall accrue to the Owner if (1) before making the payment, the Contractor included them in an Application for Payment and received payment therefor from the Owner, or (2) the Owner has deposited funds with the Contractor with which to make payments; otherwise, cash discounts shall accrue to the Contractor. Trade discounts, rebates, refunds and amounts received from sales of surplus materials and equipment shall accrue to the Owner, and the Contractor shall make provisions so that they can be secured.

9.2 Amounts which accrue to the Owner in accordance with the provisions of Paragraph 9.1 shall be credited to the Owner as a deduction from the Cost of the Work.

ARTICLE 10

SUBCONTRACTS AND OTHER AGREEMENTS

10.1 Those portions of the Work that the Contractor does not customarily perform with the Contractor's own personnel shall be performed under subcontracts or by other appropriate agreements with the Contractor. The Contractor shall obtain bids from Subcontractors and from suppliers of materials or equipment fabricated especially for the Work and shall deliver such bids to the Architect. The Owner will then determine, with the advice of the Contractor and subject to the reasonable objection of the Architect, which bids will be accepted. The Owner may designate specific persons or entities from whom the Contractor shall obtain bids; however, if a Guaranteed Maximum Price has been established, the Owner may not prohibit the Contractor from obtaining bids from others. The Contractor shall not be required to contract with anyone to whom the Contractor has reasonable objection.

10.2 If a Guaranteed Maximum Price has been established and a specific bidder among those whose bids are delivered by the Contractor to the Architect (1) is recommended to the Owner by the Contractor; (2) is qualified to perform that portion of the Work; and (3) has submitted a bid which conforms to the requirements of the Contract Documents without reservations or exceptions, but the Owner requires that another bid be accepted; then the Contractor may require that a Change Order be issued to adjust the Guaranteed Maximum Price by the difference between the bid of the person or entity recommended to the Owner by the Contractor and the amount of the subcontract or other agreement actually signed with the person or entity designated by the Owner.

10.3 Subcontracts or other agreements shall conform to the payment provisions of Paragraphs 12.7 and 12.8, and shall not be awarded on the basis of cost plus a fee without the prior consent of the Owner.

ARTICLE 11

ACCOUNTING RECORDS

11.1 The Contractor shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management under this Contract: the accounting and control systems shall be satisfactory to the Owner. The Owner and the Owner's accountants shall be afforded access to the Contractor's records, books, correspondence, instructions, drawings, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to this Contract, and the Contractor shall preserve these for a period of three years after final payment, or for such longer period as may be required by law.

ARTICLE 12

PROGRESS PAYMENTS

12.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

12.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

12.3 Provided an Application for Payment is received by the Architect not later than the _____ day of the _____ month, the Owner shall make payment to the Contractor not later than the _____ day of the _____ month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than _____ days after the Architect receives the Application for Payment.

12.4 With each Application for Payment the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner or Architect to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed (1) progress payments already received by the Contractor; less (2) that portion of those payments attributable to the Contractor's Fee; plus (3) payrolls for the period covered by the present Application for Payment; plus (4) retainage provided in Subparagraph 12.5.4, if any, applicable to prior progress payments.

12.5 CONTRACTS WITH A GUARANTEED MAXIMUM PRICE

12.5.1 Each Application for Payment shall be based upon the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Guaranteed Maximum Price among the various portions of the Work, except that the Contractor's Fee shall be shown as a single separate item. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

12.5.2 Applications for Payment shall show the percentage completion of each portion of the Work as of the end of the period covered by the Application for Payment. The percentage completion shall be the lesser of (1) the percentage of that portion of the Work which has actually been completed or (2) the percentage obtained by dividing (a) the expense which has actually been incurred by the Contractor on account of that portion of the Work for which the Contractor has made or intends to make actual payment prior to the next Application for Payment by (b) the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values.

12.5.3 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

12.5.3.1 Take that portion of the Guaranteed Maximum Price properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values. Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included as provided in Subparagraph 7.3.7 of the General Conditions, even though the Guaranteed Maximum Price has not yet been adjusted by Change Order.

12.5.3.2 Add that portion of the Guaranteed Maximum Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing.

12.5.3.3 Add the Contractor's Fee, less retainage of _____ percent (_____ %). The Contractor's Fee shall be computed upon the Cost of the Work described in the two preceding Clauses at the rate stated in Paragraph 5.1 or, if the Contractor's Fee is stated as a fixed sum in that Paragraph, shall be an amount which bears the same ratio to that fixed-sum Fee as the Cost of the Work in the two preceding Clauses bears to a reasonable estimate of the probable Cost of the Work upon its completion.

12.5.3.4 Subtract the aggregate of previous payments made by the Owner.

12.5.3.5 Subtract the shortfall, if any, indicated by the Contractor in the documentation required by Paragraph 12.4 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's accountants in such documentation.

12.5.3.6 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Paragraph 9.5 of the General Conditions.

12.5.4 Additional retainage, if any, shall be as follows:

(If it is intended to retain additional amounts from progress payments to the Contractor beyond (1) the retainage from the Contractor's Fee provided in Clause 12.5.3.3, (2) the retainage from Subcontractors provided in Paragraph 12.5.3.3, and (3) the retainage, if any, provided by other provisions of the Contract, insert provision for such additional retainage here. Such provision, if made, should also describe any arrangement for limiting or reducing the amount retained after the Work reaches a certain state of completion.)

12.6 CONTRACTS WITHOUT A GUARANTEED MAXIMUM PRICE

12.6.1 Applications for Payment shall show the Cost of the Work actually incurred by the Contractor through the end of the period covered by the Application for Payment and for which the Contractor has made or intends to make actual payment prior to the next Application for Payment.

12.6.2 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

12.6.2.1 Take the Cost of the Work as described in Subparagraph 12.6.1.

12.6.2.2 Add the Contractor's Fee, less retainage of _____ percent (_____ %). The Contractor's Fee shall be computed upon the Cost of the Work described in the preceding Clause 12.6.2.1 at the rate stated in Paragraph 5.1 or, if the Contractor's Fee is stated as a fixed sum in that Paragraph, an amount which bears the same ratio to that fixed-sum Fee as the Cost of the Work in the preceding Clause bears to a reasonable estimate of the probable Cost of the Work upon its completion.

12.6.2.3 Subtract the aggregate of previous payments made by the Owner.

12.6.2.4 Subtract the shortfall, if any, indicated by the Contractor in the documentation required by Paragraph 12.4 or to substantiate prior Applications for Payment or resulting from errors subsequently discovered by the Owner's accountants in such documentation.

12.6.2.5 Subtract amounts, if any, for which the Architect has withheld or withdrawn a Certificate for Payment as provided in the Contract Documents.

12.6.3 Additional retainage, if any, shall be as follows:

12.7 Except with the Owner's prior approval, payments to Subcontractors included in the Contractor's Applications for Payment shall not exceed an amount for each Subcontractor calculated as follows:

12.7.1 Take that portion of the Subcontract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Subcontractor's Work by the share of the total Subcontract Sum allocated to that portion in the Subcontractor's schedule of values, less retainage of _____ percent (_____ %). Pending final determination of amounts to be paid to the Subcontractor for changes in the Work, amounts not in dispute may be included as provided in Subparagraph 7.3.7 of the General Conditions even though the Subcontract Sum has not yet been adjusted by Change Order.

12.7.2 Add that portion of the Subcontract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing, less retainage of _____ percent (_____ %).

12.7.3 Subtract the aggregate of previous payments made by the Contractor to the Subcontractor.

12.7.4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment by the Owner to the Contractor for reasons which are the fault of the Subcontractor.

12.7.5 Add, upon Substantial Completion of the entire Work of the Contractor, a sum sufficient to increase the total payments to the Subcontractor to _____ percent (_____ %) of the Subcontract Sum, less amounts, if any, for incomplete Work and unsettled claims; and, if final completion of the entire Work is thereafter materially delayed through no fault of the Subcontractor, add any additional amounts payable on account of Work of the Subcontractor in accordance with Subparagraph 9.10.3 of the General Conditions.

(If it is intended, prior to Substantial Completion of the entire Work of the Contractor, to reduce or limit the retainage from Subcontractors resulting from the percentages inserted in Subparagraphs 12.7.1 and 12.7.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

The Subcontract Sum is the total amount stipulated in the subcontract to be paid by the Contractor to the Subcontractor for the Subcontractor's performance of the subcontract.

12.8 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

12.9 In taking action on the Contractor's Applications for Payment, the Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor and shall not be deemed to represent that the Architect has made a detailed examination, audit or arithmetic verification of the documentation submitted in accordance with Paragraph 12.4 or other supporting data; that the Architect has made exhaustive or continuous on-site inspections or that the Architect has made examinations to ascertain how or for what purposes the Contractor has used amounts previously paid on account of the Contract. Such examinations, audits and verifications, if required by the Owner, will be performed by the Owner's accountants acting in the sole interest of the Owner.

ARTICLE 13

FINAL PAYMENT

13.1 Final payment shall be made by the Owner to the Contractor when (1) the Contract has been fully performed by the Contractor except for the Contractor's responsibility to correct defective or nonconforming Work, as provided in Subparagraph 12.2.2 of the General Conditions, and to satisfy other requirements, if any, which necessarily survive final payment; (2) a final Application for Pay-

ment and a final accounting for the Cost of the Work have been submitted by the Contractor and reviewed by the Owner's accountants; and (3) a final Certificate for Payment has then been issued by the Architect; such final payment shall be made by the Owner not more than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

13.2 The amount of the final payment shall be calculated as follows:

13.2.1 Take the sum of the Cost of the Work substantiated by the Contractor's final accounting and the Contractor's Fee; but not more than the Guaranteed Maximum Price, if any.

13.2.2 Subtract amounts, if any, for which the Architect withholds, in whole or in part, a final Certificate for Payment as provided in Subparagraph 9.5.1 of the General Conditions or other provisions of the Contract Documents.

13.2.3 Subtract the aggregate of previous payments made by the Owner.

If the aggregate of previous payments made by the Owner exceeds the amount due the Contractor, the Contractor shall reimburse the difference to the Owner.

13.3 The Owner's accountants will review and report in writing on the Contractor's final accounting within 30 days after delivery of the final accounting to the Architect by the Contractor. Based upon such Cost of the Work as the Owner's accountants report to be substantiated by the Contractor's final accounting, and provided the other conditions of Paragraph 13.1 have been met, the Architect will, within seven days after receipt of the written report of the Owner's accountants, either issue to the Owner a final Certificate for Payment with a copy to the Contractor, or notify the Contractor and Owner in writing of the Architect's reasons for withholding a certificate as provided in Subparagraph 9.5.1 of the General Conditions. The time periods stated in this Paragraph 13.3 supersede those stated in Subparagraph 9.4.1 of the General Conditions.

13.4 If the Owner's accountants report the Cost of the Work as substantiated by the Contractor's final accounting to be less than claimed by the Contractor, the Contractor shall be entitled to demand arbitration of the disputed amount without a further decision of the Architect. Such demand for arbitration shall be made by the Contractor within 30 days after the Contractor's receipt of a copy of the Architect's final Certificate for Payment; failure to demand arbitration within this 30-day period shall result in the substantiated amount reported by the Owner's accountants becoming binding on the Contractor. Pending a final resolution by arbitration, the Owner shall pay the Contractor the amount certified in the Architect's final Certificate for Payment.

13.5 If, subsequent to final payment and at the Owner's request, the Contractor incurs costs described in Article 7 and not excluded by Article 8 to correct defective or nonconforming Work, the Owner shall reimburse the Contractor such costs and the Contractor's Fee applicable thereto on the same basis as if such costs had been incurred prior to final payment, but not in excess of the Guaranteed Maximum Price, if any. If the Contractor has participated in savings as provided in Paragraph 5.2, the amount of such savings shall be recalculated and appropriate credit given to the Owner in determining the net amount to be paid by the Owner to the Contractor.

ARTICLE 14

MISCELLANEOUS PROVISIONS

14.1 Where reference is made in this Agreement to a provision of the General Conditions or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

14.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

(Usury laws and requirements under the Federal Truth in Lending Act, similar state and local consumer credit laws and other regulations at the Owner's and Contractor's principal places of business, the location of the Project and elsewhere may affect the validity of this provision. Legal advice should be obtained with respect to deletions or modifications, and also regarding requirements such as written disclosures or waivers.)

14.3 Other provisions:

ARTICLE 15

TERMINATION OR SUSPENSION

15.1 The Contract may be terminated by the Contractor as provided in Article 14 of the General Conditions; however, the amount to be paid to the Contractor under Subparagraph 14.1.2 of the General Conditions shall not exceed the amount the Contractor would be entitled to receive under Paragraph 15.3 below, except that the Contractor's Fee shall be calculated as if the Work had been fully completed by the Contractor, including a reasonable estimate of the Cost of the Work for Work not actually completed.

15.2 If a Guaranteed Maximum Price is established in Article 5, the Contract may be terminated by the Owner for cause as provided in Article 14 of the General Conditions; however, the amount, if any, to be paid to the Contractor under Subparagraph 14.2.4 of the General Conditions shall not cause the Guaranteed Maximum Price to be exceeded, nor shall it exceed the amount the Contractor would be entitled to receive under Paragraph 15.3 below.

15.3 If no Guaranteed Maximum Price is established in Article 5, the Contract may be terminated by the Owner for cause as provided in Article 14 of the General Conditions; however, the Owner shall then pay the Contractor an amount calculated as follows:

15.3.1 Take the Cost of the Work incurred by the Contractor to the date of termination.

15.3.2 Add the Contractor's Fee computed upon the Cost of the Work to the date of termination at the rate stated in Paragraph 5.1 or, if the Contractor's Fee is stated as a fixed sum in that Paragraph, an amount which bears the same ratio to that fixed-sum Fee as the Cost of the Work at the time of termination bears to a reasonable estimate of the probable Cost of the Work upon its completion.

15.3.3 Subtract the aggregate of previous payments made by the Owner.

The Owner shall also pay the Contractor fair compensation, either by purchase or rental at the election of the Owner, for any equipment owned by the Contractor which the Owner elects to retain and which is not otherwise included in the Cost of the Work under Subparagraph 15.3.1. To the extent that the Owner elects to take legal assignment of subcontracts and purchase orders (including rental agreements), the Contractor shall, as a condition of receiving the payments referred to in this Article 15, execute and deliver all such papers and take all such steps, including the legal assignment of such subcontracts and other contractual rights of the Contractor, as the Owner may require for the purpose of fully vesting in the Owner the rights and benefits of the Contractor under such subcontracts or purchase orders.

15.4 The Work may be suspended by the Owner as provided in Article 14 of the General Conditions; in such case, the Guaranteed Maximum Price, if any, shall be increased as provided in Subparagraph 14.3.2 of the General Conditions except that the term "cost of performance of the Contract" in that Subparagraph shall be understood to mean the Cost of the Work and the term "profit" shall be understood to mean the Contractor's Fee as described in Paragraphs 5.1 and 6.3 of this Agreement.

ARTICLE 16

ENUMERATION OF CONTRACT DOCUMENTS

16.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated as follows:

16.1.1 The Agreement is this executed Standard Form of Agreement Between Owner and Contractor, AIA Document A111, 1987 Edition.

16.1.2 The General Conditions are the General Conditions of the Contract for Construction, AIA Document A201, 1987 Edition.

16.1.3 The Supplementary and other Conditions of the Contract are those contained in the Project Manual dated , and are as follows:

Document	Title	Pages
----------	-------	-------

16.1.4 The Specifications are those contained in the Project Manual dated as in Paragraph 16.1.3, and are as follows:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Pages
---------	-------	-------

unless a different date is shown below:

Number	Title	Date
--------	-------	------

16.1.6 The Addenda, if any, are as follows:

Number	Date	Pages
--------	------	-------

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 16.

16.1.7 Other Documents, if any, forming part of the Contract Documents are as follows:

(List here any additional documents which are intended to form part of the Contract Documents. The General Conditions provide that bidding requirements such as advertisement or invitation to bid, instructions to bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

This Agreement is entered into as of the day and year first written above and is executed in at least three original copies of which one is to be delivered to the Contractor, one to the Architect for use in the administration of the Contract, and the remainder to the Owner.

OWNER

CONTRACTOR

(Signature)

(Signature)

(Printed name and title)

(Printed name and title)

APPENDIX E

AIA DOCUMENT A201
GENERAL CONDITIONS OF THE CONTRACT
FOR CONSTRUCTION



AIA Document A201

General Conditions of the Contract for Construction

*THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES; CONSULTATION
WITH AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS MODIFICATION*

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GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

ARTICLE 1

GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Agreement between Owner and Contractor (hereinafter the Agreement), Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include other documents such as bidding requirements (advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or portions of addenda relating to bidding requirements).

1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Architect and Contractor, (2) between the Owner and a Subcontractor or Sub-subcontractor or (3) between any persons or entities other than the Owner and Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equip-

ment, construction systems, standards and workmanship for the Work, and performance of related services.

1.1.7 THE PROJECT MANUAL

The Project Manual is the volume usually assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 The Contract Documents shall be signed by the Owner and Contractor as provided in the Agreement. If either the Owner or Contractor or both do not sign all the Contract Documents, the Architect shall identify such unsigned Documents upon request.

1.2.2 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results.

1.2.4 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

1.2.5 Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

1.3 OWNERSHIP AND USE OF ARCHITECT'S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS

1.3.1 The Drawings, Specifications and other documents prepared by the Architect are instruments of the Architect's service through which the Work to be executed by the Contractor is described. The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Architect, and unless otherwise indicated the Architect shall be deemed the author of them and will retain all common law, statutory and other reserved rights, in addition to the copyright. All copies of them, except the Contractor's record set, shall be returned or suitably accounted for to the Architect, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Architect, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the

Work without the specific written consent of the Owner and Architect. The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this license shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's copyright or other reserved rights.

1.4 CAPITALIZATION

1.4.1 Terms capitalized in these General Conditions include those which are (1) specifically defined, (2) the titles of numbered articles and identified references to Paragraphs, Subparagraphs and Clauses in the document or (3) the titles of other documents published by the American Institute of Architects.

1.5 INTERPRETATION

1.5.1 In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

ARTICLE 2

OWNER

2.1 DEFINITION

2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Owner" means the Owner or the Owner's authorized representative.

2.1.2 The Owner upon reasonable written request shall furnish to the Contractor in writing information which is necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein at the time of execution of the Agreement and, within five days after any change, information of such change in title, recorded or unrecorded.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 The Owner shall, at the request of the Contractor, prior to execution of the Agreement and promptly from time to time thereafter, furnish to the Contractor reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. *[Note: Unless such reasonable evidence were furnished on request prior to the execution of the Agreement, the prospective contractor would not be required to execute the Agreement or to commence the Work.]*

2.2.2 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site.

2.2.3 Except for permits and fees which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assess-

ments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

2.2.4 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness to avoid delay in orderly progress of the Work.

2.2.5 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, such copies of Drawings and Project Manuals as are reasonably necessary for execution of the Work.

2.2.6 The foregoing are in addition to other duties and responsibilities of the Owner enumerated herein and especially those in respect to Article 6 (Construction by Owner or by Separate Contractors), Article 9 (Payments and Completion) and Article 11 (Insurance and Bonds).

2.3 OWNER'S RIGHT TO STOP THE WORK

2.3.1 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Paragraph 12.2 or persistently fails to carry out Work in accordance with the Contract Documents, the Owner, by written order signed personally or by an agent specifically so empowered by the Owner in writing, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Subparagraph 6.1.3.

2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

2.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may after such seven-day period give the Contractor a second written notice to correct such deficiencies within a second seven-day period. If the Contractor within such second seven-day period after receipt of such second notice fails to commence and continue to correct any deficiencies, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Architect's additional services and expenses made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3

CONTRACTOR

3.1 DEFINITION

3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's authorized representative.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.1 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner pursuant to Subparagraph 2.2.2 and shall at once report to the Architect errors, inconsistencies or omissions discovered. The Contractor shall not be liable to the Owner or Architect for damage resulting from errors, inconsistencies or omissions in the Contract Documents unless the Contractor recognized such error, inconsistency or omission and knowingly failed to report it to the Architect. If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency or omission in the Contract Documents without such notice to the Architect, the Contractor shall assume appropriate responsibility for such performance and shall bear an appropriate amount of the attributable costs for correction.

3.2.2 The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Architect at once.

3.2.3 The Contractor shall perform the Work in accordance with the Contract Documents and submittals approved pursuant to Paragraph 3.12.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters.

3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.

3.3.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.

3.3.4 The Contractor shall be responsible for inspection of portions of Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

3.4 LABOR AND MATERIALS

3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

3.4.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

3.5 WARRANTY

3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

3.6 TAXES

3.6.1 The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

3.7 PERMITS, FEES AND NOTICES

3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received or negotiations concluded.

3.7.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities bearing on performance of the Work.

3.7.3 It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.

3.7.4 If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Architect and Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs.

3.8 ALLOWANCES

3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities against which the Contractor makes reasonable objection.

3.8.2 Unless otherwise provided in the Contract Documents:

- .1** materials and equipment under an allowance shall be selected promptly by the Owner to avoid delay in the Work;
- .2** allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

- 3 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum and not in the allowances;
- 4 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Clause 3.8.2.2 and (2) changes in Contractor's costs under Clause 3.8.2.3.

3.9 SUPERINTENDENT

3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

3.10.2 The Contractor shall prepare and keep current, for the Architect's approval, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the Architect reasonable time to review submittals.

3.10.3 The Contractor shall conform to the most recent schedules.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

3.11.1 The Contractor shall maintain at the site for the Owner one record copy of the Drawings, Specifications, addenda, Change Orders and other Modifications, in good order and marked currently to record changes and selections made during construction, and in addition approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

3.12.3 Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for

which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Architect is subject to the limitations of Subparagraph 4.2.7.

3.12.5 The Contractor shall review, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents may be returned without action.

3.12.6 The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect. Such Work shall be in accordance with approved submittals.

3.12.7 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

3.12.8 The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals.

3.12.10 Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents.

3.12.11 When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the Architect shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

3.13 USE OF SITE

3.13.1 The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

3.14 CUTTING AND PATCHING

3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the

Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

3.15 CLEANING UP

3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials.

3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

3.16 ACCESS TO WORK

3.16.1 The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

3.17 ROYALTIES AND PATENTS

3.17.1 The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

3.18 INDEMNIFICATION

3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Paragraph 3.18.

3.18.2 In claims against any person or entity indemnified under this Paragraph 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Paragraph 3.18 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

3.18.3 The obligations of the Contractor under this Paragraph 3.18 shall not extend to the liability of the Architect, the Archi-

tect's consultants, and agents and employees of any of them arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications, or (2) the giving of or the failure to give directions or instructions by the Architect, the Architect's consultants, and agents and employees of any of them provided such giving or failure to give is the primary cause of the injury or damage.

ARTICLE 4

ADMINISTRATION OF THE CONTRACT

4.1 ARCHITECT

4.1.1 The Architect is the person lawfully licensed to practice architecture or an entity lawfully practicing architecture identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Architect" means the Architect or the Architect's authorized representative.

4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

4.1.3 In case of termination of employment of the Architect, the Owner shall appoint an architect against whom the Contractor makes no reasonable objection and whose status under the Contract Documents shall be that of the former architect.

4.1.4 Disputes arising under Subparagraphs 4.1.2 and 4.1.3 shall be subject to arbitration.

4.2 ARCHITECT'S ADMINISTRATION OF THE CONTRACT

4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents, and will be the Owner's representative (1) during construction, (2) until final payment is due and (3) with the Owner's concurrence, from time to time during the correction period described in Paragraph 12.2. The Architect will advise and consult with the Owner. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with other provisions of the Contract.

4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check quality or quantity of the Work. On the basis of on-site observations as an architect, the Architect will keep the Owner informed of progress of the Work, and will endeavor to guard the Owner against defects and deficiencies in the Work.

4.2.3 The Architect will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in Paragraph 3.3. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Con-

tractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.

4.2.4 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate through the Architect. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

4.2.5 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

4.2.6 The Architect will have authority to reject Work which does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable for implementation of the intent of the Contract Documents, the Architect will have authority to require additional inspection or testing of the Work in accordance with Subparagraphs 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

4.2.7 The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor or separate contractors, while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Paragraphs 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Paragraph 7.4.

4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Owner for the Owner's review and records written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents.

4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying

out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

4.2.11 The Architect will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made with reasonable promptness and within any time limits agreed upon. If no agreement is made concerning the time within which interpretations required of the Architect shall be furnished in compliance with this Paragraph 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretations until 15 days after written request is made for them.

4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith.

4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

4.3 CLAIMS AND DISPUTES

4.3.1 Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be made by written notice. The responsibility to substantiate Claims shall rest with the party making the Claim.

4.3.2 Decision of Architect. Claims, including those alleging an error or omission by the Architect, shall be referred initially to the Architect for action as provided in Paragraph 4.4. A decision by the Architect, as provided in Subparagraph 4.4.4, shall be required as a condition precedent to arbitration or litigation of a Claim between the Contractor and Owner as to all such matters arising prior to the date final payment is due, regardless of (1) whether such matters relate to execution and progress of the Work or (2) the extent to which the Work has been completed. The decision by the Architect in response to a Claim shall not be a condition precedent to arbitration or litigation in the event (1) the position of Architect is vacant, (2) the Architect has not received evidence or has failed to render a decision within agreed time limits, (3) the Architect has failed to take action required under Subparagraph 4.4.4 within 30 days after the Claim is made, (4) 45 days have passed after the Claim has been referred to the Architect or (5) the Claim relates to a mechanic's lien.

4.3.3 Time Limits on Claims. Claims by either party must be made within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be made by written notice. An additional Claim made after the initial Claim has been implemented by Change Order will not be considered unless submitted in a timely manner.

4.3.4 Continuing Contract Performance. Pending final resolution of a Claim including arbitration, unless otherwise agreed in writing the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

4.3.5 Waiver of Claims: Final Payment. The making of final payment shall constitute a waiver of Claims by the Owner except those arising from:

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

4.3.6 Claims for Concealed or Unknown Conditions. If conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall so notify the Owner and Contractor in writing, stating the reasons. Claims by either party in opposition to such determination must be made within 21 days after the Architect has given notice of the decision. If the Owner and Contractor cannot agree on an adjustment in the Contract Sum or Contract Time, the adjustment shall be referred to the Architect for initial determination, subject to further proceedings pursuant to Paragraph 4.4.

4.3.7 Claims for Additional Cost. If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Paragraph 10.3. If the Contractor believes additional cost is involved for reasons including but not limited to (1) a written Interpretation from the Architect, (2) an order by the Owner to stop the Work where the Contractor was not at fault, (3) a written order for a minor change in the Work issued by the Architect, (4) failure of payment by the Owner, (5) termination of the Contract by the Owner, (6) Owner's suspension or (7) other reasonable grounds, Claim shall be filed in accordance with the procedure established herein.

4.3.8 Claims for Additional Time

4.3.8.1 If the Contractor wishes to make Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

4.3.8.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data

substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the scheduled construction.

4.3.9 Injury or Damage to Person or Property. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts such party is legally liable, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided in Subparagraphs 4.3.7 or 4.3.8.

4.4 RESOLUTION OF CLAIMS AND DISPUTES

4.4.1 The Architect will review Claims and take one or more of the following preliminary actions within ten days of receipt of a Claim: (1) request additional supporting data from the claimant, (2) submit a schedule to the parties indicating when the Architect expects to take action, (3) reject the Claim in whole or in part, stating reasons for rejection, (4) recommend approval of the Claim by the other party or (5) suggest a compromise. The Architect may also, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim.

4.4.2 If a Claim has been resolved, the Architect will prepare or obtain appropriate documentation.

4.4.3 If a Claim has not been resolved, the party making the Claim shall, within ten days after the Architect's preliminary response, take one or more of the following actions: (1) submit additional supporting data requested by the Architect, (2) modify the initial Claim or (3) notify the Architect that the initial Claim stands.

4.4.4 If a Claim has not been resolved after consideration of the foregoing and of further evidence presented by the parties or requested by the Architect, the Architect will notify the parties in writing that the Architect's decision will be made within seven days, which decision shall be final and binding on the parties but subject to arbitration. Upon expiration of such time period, the Architect will render to the parties the Architect's written decision relative to the Claim, including any change in the Contract Sum or Contract Time or both. If there is a surety and there appears to be a possibility of a Contractor's default, the Architect may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

4.5 ARBITRATION

4.5.1 Controversies and Claims Subject to Arbitration. Any controversy or Claim arising out of or related to the Contract, or the breach thereof, shall be settled by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator or arbitrators may be entered in any court having jurisdiction thereof, except controversies or Claims relating to aesthetic effect and except those waived as provided for in Subparagraph 4.3.5. Such controversies or Claims upon which the Architect has given notice and rendered a decision as provided in Subparagraph 4.4.4 shall be subject to arbitration upon written demand of either party. Arbitration may be commenced when 45 days have passed after a Claim has been referred to the Architect as provided in Paragraph 4.3 and no decision has been rendered.

4.5.2 Rules and Notices for Arbitration. Claims between the Owner and Contractor not resolved under Paragraph 4.4 shall, if subject to arbitration under Subparagraph 4.5.1, be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect, unless the parties mutually agree otherwise. Notice of demand for arbitration shall be filed in writing with the other party to the Agreement between the Owner and Contractor and with the American Arbitration Association, and a copy shall be filed with the Architect.

4.5.3 Contract Performance During Arbitration. During arbitration proceedings, the Owner and Contractor shall comply with Subparagraph 4.3.4.

4.5.4 When Arbitration May Be Demanded. Demand for arbitration of any Claim may not be made until the earlier of (1) the date on which the Architect has rendered a final written decision on the Claim, (2) the tenth day after the parties have presented evidence to the Architect or have been given reasonable opportunity to do so, if the Architect has not rendered a final written decision by that date, or (3) any of the five events described in Subparagraph 4.3.2.

4.5.4.1 When a written decision of the Architect states that (1) the decision is final but subject to arbitration and (2) a demand for arbitration of a Claim covered by such decision must be made within 30 days after the date on which the party making the demand receives the final written decision, then failure to demand arbitration within said 30 days' period shall result in the Architect's decision becoming final and binding upon the Owner and Contractor. If the Architect renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence, but shall not supersede arbitration proceedings unless the decision is acceptable to all parties concerned.

4.5.4.2 A demand for arbitration shall be made within the time limits specified in Subparagraphs 4.5.1 and 4.5.4 and Clause 4.5.4.1 as applicable, and in other cases within a reasonable time after the Claim has arisen, and in no event shall it be made after the date when institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations as determined pursuant to Paragraph 13.7.

4.5.5 Limitation on Consolidation or Joinder. No arbitration arising out of or relating to the Contract Documents shall include, by consolidation or joinder or in any other manner, the Architect, the Architect's employees or consultants, except by written consent containing specific reference to the Agreement and signed by the Architect, Owner, Contractor and any other person or entity sought to be joined. No arbitration shall include, by consolidation or joinder or in any other manner, parties other than the Owner, Contractor, a separate contractor as described in Article 6 and other persons substantially involved in a common question of fact or law whose presence is required if complete relief is to be accorded in arbitration. No person or entity other than the Owner, Contractor or a separate contractor as described in Article 6 shall be included as an original third party or additional third party to an arbitration whose interest or responsibility is insubstantial. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a dispute not described therein or with a person or entity not named or described therein. The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

4.5.6 Claims and Timely Assertion of Claims. A party who files a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded. When a party fails to include a Claim through oversight, inadvertence or excusable neglect, or when a Claim has matured or been acquired subsequently, the arbitrator or arbitrators may permit amendment.

4.5.7 Judgment on Final Award. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect will promptly reply to the Contractor in writing stating whether or not the Owner or the Architect, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Architect to reply promptly shall constitute notice of no reasonable objection.

5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. The Contract Sum shall be increased or decreased by the difference in cost occasioned by such change and an appropriate Change Order shall be issued. However, no increase in the Contract Sum shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

5.2.4 The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such change.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1 By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that:

- .1** assignment is effective only after termination of the Contract by the Owner for cause pursuant to Paragraph 14.2 and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor in writing; and
- .2** assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

5.4.2 If the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted.

ARTICLE 6

CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided elsewhere in the Contract Documents.

6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules when directed to do so. The Contractor shall make any revisions to the construction schedule and Contract Sum deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights which apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

6.2.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the party responsible therefor.

6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate contractors as provided in Subparagraph 10.2.5.

6.2.5 Claims and other disputes and matters in question between the Contractor and a separate contractor shall be subject to the provisions of Paragraph 4.3 provided the separate contractor has reciprocal obligations.

6.2.6 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Paragraph 3.14.

6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in Paragraph 3.15, the Owner may clean up and allocate the cost among those responsible as the Architect determines to be just.

ARTICLE 7

CHANGES IN THE WORK

7.1 CHANGES

7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

7.1.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are so changed in a proposed Change Order or Construction Change Directive that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

7.2 CHANGE ORDERS

7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect, stating their agreement upon all of the following:

- .1 a change in the Work;
- .2 the amount of the adjustment in the Contract Sum, if any; and
- .3 the extent of the adjustment in the Contract Time, if any.

7.2.2 Methods used in determining adjustments to the Contract Sum may include those listed in Subparagraph 7.3.3.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 unit prices stated in the Contract Documents or subsequently agreed upon;

- .3 cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 as provided in Subparagraph 7.3.6.

7.3.4 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

7.3.5 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

7.3.6 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Architect on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit. In such case, and also under Clause 7.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Subparagraph 7.3.6 shall be limited to the following:

- .1 costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' or workmen's compensation insurance;
- .2 costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 additional costs of supervision and field office personnel directly attributable to the change.

7.3.7 Pending final determination of cost to the Owner, amounts not in dispute may be included in Applications for Payment. The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

7.3.8 If the Owner and Contractor do not agree with the adjustment in Contract Time or the method for determining it, the adjustment or the method shall be referred to the Architect for determination.

7.3.9 When the Owner and Contractor agree with the determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

7.4 MINOR CHANGES IN THE WORK

7.4.1 The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

ARTICLE 8

TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

8.1.2 The date of commencement of the Work is the date established in the Agreement. The date shall not be postponed by the failure to act of the Contractor or of persons or entities for whom the Contractor is responsible.

8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Paragraph 9.8.

8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

8.2 PROGRESS AND COMPLETION

8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor. The date of commencement of the Work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by a notice to proceed given by the Owner, the Contractor shall notify the Owner in writing not less than five days or other agreed period before commencing the Work to permit the timely filing of mortgages, mechanic's liens and other security interests.

8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 If the Contractor is delayed at any time in progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control, or by delay authorized by the Owner pending arbitration, or by other causes which the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Paragraph 4.3.

8.3.3 This Paragraph 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

9.2 SCHEDULE OF VALUES

9.2.1 Before the first Application for Payment, the Contractor shall submit to the Architect a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for operations completed in accordance with the schedule of values. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and reflecting retainage if provided for elsewhere in the Contract Documents.

9.3.1.1 Such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives but not yet included in Change Orders.

9.3.1.2 Such applications may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.

9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

9.4 CERTIFICATES FOR PAYMENT

9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the

Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Subparagraph 9.5.1.

9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's observations at the site and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Architect's knowledge, information and belief, quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Contract Documents correctable prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

9.5.1 The Architect may decide not to certify payment and may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Subparagraph 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Subparagraph 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also decide not to certify payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss because of:

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or another contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 persistent failure to carry out the Work in accordance with the Contract Documents.

9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

9.6 PROGRESS PAYMENTS

9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

9.6.2 The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in similar manner.

9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

9.6.4 Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

9.6.5 Payment to material suppliers shall be treated in a manner similar to that provided in Subparagraphs 9.6.2, 9.6.3 and 9.6.4.

9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

9.7 FAILURE OF PAYMENT

9.7.1 If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by arbitration, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, which shall be accomplished as provided in Article 7.

9.8 SUBSTANTIAL COMPLETION

9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or desig-

nated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. The Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion. When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate.

9.8.3 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Architect, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Subparagraph 11.3.11 and authorized by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Subparagraph 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make

such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Subparagraph 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be cancelled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims. The making of final payment shall constitute a waiver of claims by the Owner as provided in Subparagraph 4.3.5.

9.10.4 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment. Such waivers shall be in addition to the waiver described in Subparagraph 4.3.5.

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

10.1.2 In the event the Contractor encounters on the site material reasonably believed to be asbestos or polychlorinated biphenyl (PCB) which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and Architect in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Owner and Contractor if in fact the material is asbestos or polychlorinated biphenyl (PCB) and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos or polychlorinated biphenyl (PCB), or when it has been rendered harmless, by written agreement of the Owner and Contractor, or in accordance with final determination by the Architect on which arbitration has not been demanded, or by arbitration under Article 4.

10.1.3 The Contractor shall not be required pursuant to Article 7 to perform without consent any Work relating to asbestos or polychlorinated biphenyl (PCB).

10.1.4 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material is asbestos or polychlorinated biphenyl (PCB) and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the Owner, anyone directly or indirectly employed by the Owner or anyone for whose acts the Owner may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Subparagraph 10.1.4.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Clauses 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Paragraph 3.18.

10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

10.2.7 The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

10.3 EMERGENCIES

10.3.1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Paragraph 4.3 and Article 7.

ARTICLE 11

INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 claims under workers' or workmen's compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;

- .2 claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 claims for damages insured by usual personal injury liability coverage which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person;
- .5 claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle; and
- .7 claims involving contractual liability insurance applicable to the Contractor's obligations under Paragraph 3.18.

11.1.2 The insurance required by Subparagraph 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment.

11.1.3 Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. These Certificates and the insurance policies required by this Paragraph 11.1 shall contain a provision that coverages afforded under the policies will not be cancelled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment as required by Subparagraph 9.10.2. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

11.2 OWNER'S LIABILITY INSURANCE

11.2.1 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance. Optionally, the Owner may purchase and maintain other insurance for self-protection against claims which may arise from operations under the Contract. The Contractor shall not be responsible for purchasing and maintaining this optional Owner's liability insurance unless specifically required by the Contract Documents.

11.3 PROPERTY INSURANCE

11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost basis without voluntary deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Paragraph 9.10 or until no person or entity

other than the Owner has an insurable interest in the property required by this Paragraph 11.3 to be covered, whichever is earlier. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

11.3.1.1 Property insurance shall be on an all-risk policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, false-work, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's services and expenses required as a result of such insured loss. Coverage for other perils shall not be required unless otherwise provided in the Contract Documents.

11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance which will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor, then the Owner shall bear all reasonable costs properly attributable thereto.

11.3.1.3 If the property insurance requires minimum deductibles and such deductibles are identified in the Contract Documents, the Contractor shall pay costs not covered because of such deductibles. If the Owner or insurer increases the required minimum deductibles above the amounts so identified or if the Owner elects to purchase this insurance with voluntary deductible amounts, the Owner shall be responsible for payment of the additional costs not covered because of such increased or voluntary deductibles. If deductibles are not identified in the Contract Documents, the Owner shall pay costs not covered because of deductibles.

11.3.1.4 Unless otherwise provided in the Contract Documents, this property insurance shall cover portions of the Work stored off the site after written approval of the Owner at the value established in the approval, and also portions of the Work in transit.

11.3.2 Boiler and Machinery Insurance. The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

11.3.3 Loss of Use Insurance. The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or for other special hazards be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, adjoining or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Subparagraph 11.3.7 for damages caused by fire or other perils covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Paragraph 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be cancelled or allowed to expire until at least 30 days' prior written notice has been given to the Contractor.

11.3.7 Waivers of Subrogation. The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other perils to the extent covered by property insurance obtained pursuant to this Paragraph 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

11.3.8 A loss insured under Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Subparagraph 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or in accordance with an arbitration award in which case the procedure shall be as provided in Paragraph 4.5. If after such loss no other special agreement is made, replacement of damaged property shall be covered by appropriate Change Order.

11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection be made, arbitrators shall be chosen as provided in Paragraph 4.5. The Owner as fiduciary shall, in that case, make settlement with insurers in accordance with directions of such arbitrators. If distribution of insurance proceeds by arbitration is required, the arbitrators will direct such distribution.

11.3.11 Partial occupancy or use in accordance with Paragraph 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

11.4 PERFORMANCE BOND AND PAYMENT BOND

11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

ARTICLE 12

UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Architect, be uncovered for the Architect's observation and be replaced at the Contractor's expense without change in the Contract Time.

12.1.2 If a portion of the Work has been covered which the Architect has not specifically requested to observe prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work is not in accordance with the Contract Documents, the Contractor shall pay such costs unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

12.2 CORRECTION OF WORK

12.2.1 The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear costs of correcting such rejected Work, including additional testing and inspections and compensation for the Architect's services and expenses made necessary thereby.

12.2.2 If, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date

for commencement of warranties established under Subparagraph 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. This period of one year shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work. This obligation under this Subparagraph 12.2.2 shall survive acceptance of the Work under the Contract and termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

12.2.3 The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

12.2.4 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Paragraph 2.4. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Architect, the Owner may remove it and store the salvable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten days after written notice, the Owner may upon ten additional days' written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Architect's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

12.2.5 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

12.2.6 Nothing contained in this Paragraph 12.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the time period of one year as described in Subparagraph 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

12.3 ACCEPTANCE OF NONCONFORMING WORK

12.3.1 If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13

MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

13.1.1 The Contract shall be governed by the law of the place where the Project is located.

13.2 SUCCESSORS AND ASSIGNS

13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

13.3 WRITTEN NOTICE

13.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice.

13.4 RIGHTS AND REMEDIES

13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

13.5 TESTS AND INSPECTIONS

13.5.1 Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so the Architect may observe such procedures. The Owner shall bear costs of tests, inspections or approvals which do not become requirements until after bids are received or negotiations concluded.

13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Subparagraph 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so the Architect may observe such procedures.

The Owner shall bear such costs except as provided in Subparagraph 13.5.3.

13.5.3 If such procedures for testing, inspection or approval under Subparagraphs 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses.

13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

13.6 INTEREST

13.6.1 Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

13.7 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

13.7.1 As between the Owner and Contractor:

- .1 Before Substantial Completion.** As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion;
- .2 Between Substantial Completion and Final Certificate for Payment.** As to acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to issuance of the final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of issuance of the final Certificate for Payment; and
- .3 After Final Certificate for Payment.** As to acts or failures to act occurring after the relevant date of issuance of the final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Contractor pursuant to any warranty provided under Paragraph 3.5, the date of any correction of the Work or failure to correct the Work by the Contractor under Paragraph 12.2, or the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner, whichever occurs last.

ARTICLE 14

TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor, for any of the following reasons:

- .1** issuance of an order of a court or other public authority having jurisdiction;
- .2** an act of government, such as a declaration of national emergency, making material unavailable;
- .3** because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Subparagraph 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents;
- .4** if repeated suspensions, delays or interruptions by the Owner as described in Paragraph 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less; or
- .5** the Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Subparagraph 2.2.1.

14.1.2 If one of the above reasons exists, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead, profit and damages.

14.1.3 If the Work is stopped for a period of 60 days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Subparagraph 14.1.2.

14.2 TERMINATION BY THE OWNER FOR CAUSE

14.2.1 The Owner may terminate the Contract if the Contractor:

- .1** persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2** fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3** persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or
- .4** otherwise is guilty of substantial breach of a provision of the Contract Documents.

14.2.2 When any of the above reasons exist, the Owner, upon certification by the Architect that sufficient cause exists to jus-

tify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 accept assignment of subcontracts pursuant to Paragraph 5.4; and
- .3 finish the Work by whatever reasonable method the Owner may deem expedient.

14.2.3 When the Owner terminates the Contract for one of the reasons stated in Subparagraph 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the

Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

14.3.2 An adjustment shall be made for increases in the cost of performance of the Contract, including profit on the increased cost of performance, caused by suspension, delay or interruption. No adjustment shall be made to the extent:

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of this Contract.

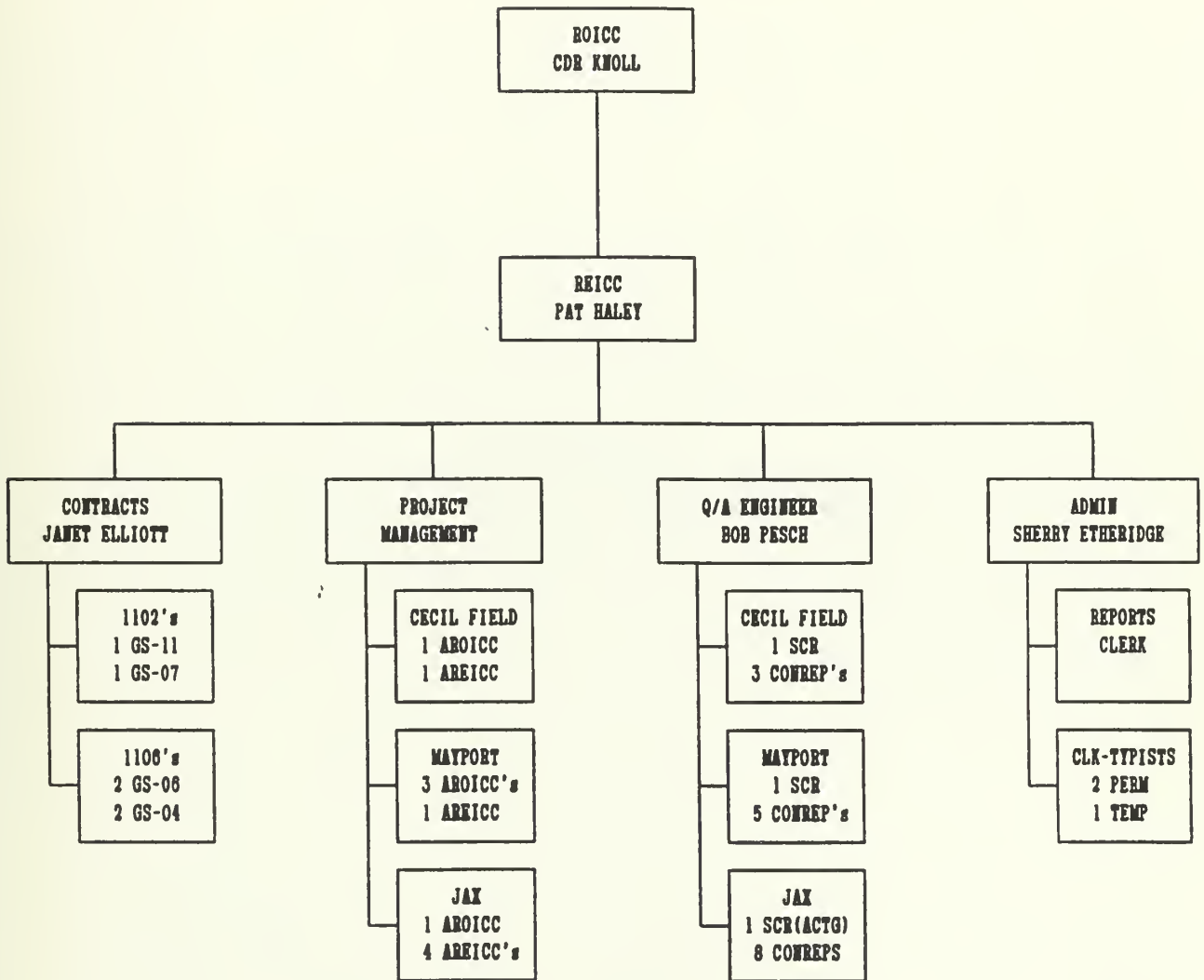
14.3.3 Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.

APPENDIX F

ROICC JACKSONVILLE, FL
ORGANIZATION CHART

ROICC JAXA ORGANIZATION

ON-BOARD NUMBERS



APPENDIX G

DATA BASE I

ROICC JACKSONVILLE PROCUREMENT RECORD

ROICC JAXA PROCUREMENT RECORD AS OF JULY 2, 1990

*** FOR OFFICIAL USE ONLY ***

SITE	CONT NO	TITLE CONTRACTOR REMARKS	\$ P&S	CBD	AMEND MODS	PM CR	BID DATE	AWARD COMPL % TIME	AWARD AMOUNT CURRENT VALUE % WIP	NTP LTR INSURE	PROG SCHD
C	76-0781	Aircraft Ac. Enclosure Connor-Harben Construction Co. FINAL	X X	X	0 11	R13 JM	12 FEB 87	26 MAR 87 08 APR 89 99.9	\$4,188,384.00 \$4,191,767.00 100.0	26 MAR 87	
J	81-0111	Maintenance Hangar Improvements Robert Bay Construction Co. ASBESTOS, CLAIMS PENDING	X X	X	0 42	R20 LB	15 AUG 85	11 SEP 85 25 MAY 88 177.8	\$6,673,000.00 \$7,517,657.00 100.0	11 SEP 85 08 MAY 87	
J	81-0850	Data Processing Center Robert Bay Construction Co.	X X	X	0 22	R14 JC	10 SEP 87	24 SEP 87 21 APR 89 176.0	\$7,867,000.00 \$9,043,603.00 100.0	24 SEP 87 01 FEB 90	
J	82-0332	Brig R. B. Bay Construction Co., Inc.	X X	X	0 15	R11 LB	10 SEP 87	25 SEP 87 18 JAN 90 119.5	\$2,850,000.00 \$2,946,426.00 100.0	25 SEP 87 01 JUN 90	
M	83-0216	Berthing Improvements Fraley Associates Inc. Pending Claims	X X	X	0 50	R10 RW	15 AUG 85	25 SEP 85 06 JUN 89 129.0	\$9,665,000.00 \$10,772,480.00 100.0	25 SEP 85 15 FEB 90	
M	83-0251	Maintenance Hangar Graham Construction CLAIM,	X X	X	0 19	R20 LG	05 DEC 85	05 FEB 86 17 SEP 87 273.0	\$9,062,135.00 \$9,062,135.00 99.8	05 FEB 86	
J	83-2456	Repair Electrical Distribution Syste Quality Electric Service Inc. Defaulted	X X	X	0 13	R20 JC	29 AUG 84	07 NOV 84 29 JAN 88 175.1	\$3,838,167.00 \$3,838,167.00 88.6	07 NOV 84	
M	83-3484	Repair Neutralization Pond Byer Industries CLAIM	X X	X	0 5	R20 RW	22 AUG 85	27 SEP 85 15 JAN 87 366.1	\$299,065.00 \$299,065.00 100.0	27 SEP 85	
J	84-0283	Hospital Addition Lott Constructors Inc.	X X	X	0 46	R14 BC	21 AUG 86	21 AUG 86 18 JUN 90 101.0	\$15,262,000.00 \$15,720,247.00 100.0	06 MAR 87 15 APR 88	
C	84-0356	Training Debriefing Facility Landmark Constructors	X X	X	0 3	R20 EH	17 JUL 86	24 OCT 85 21 DEC 87 217.3	\$779,445.00 \$779,445.00 100.0	24 OCT 85	
J	84-0625	Patrol Aircraft Training Bldg Graham Contracting	X X	X	0 13	R20 HA	24 APR 86	11 JUN 86 08 SEP 87 326.4	\$4,142,000.00 \$4,339,949.00 100.0	08 JUL 86 01 OCT 87	
J	84-0628	Fuel Storage Tank Rprs Petroleum Tank Services Inc. *,	X X	X	0 7	R17 LB	16 SEP 88	28 SEP 88 07 DEC 89 147.6	\$533,770.00 \$682,449.00 102.6	28 SEP 88 05 FEB 89	
J	84-2449	HVAC Power Plant Bldg. 101 Sauer Incorporated	X X	X	4 2	R14 JC	12 SEP 89	19 SEP 89 04 OCT 90 75.3	\$1,123,800.00 \$1,145,106.00 78.6	03 OCT 89 01 JAN 91	

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SITE	CONT NO	TITLE CONTRACTOR REMARKS	\$ F&S	CBD	AMEND MODS	PM CR	BID DATE	AWARD COMPL % TIME	AWARD AMOUNT CURRENT VALUE % WIP	NTP LTR INSURE	PROG SCHED
J	84-2540	Improvements to Elect Network Sun Electric Co.	X X	X	0 3	R14 LB	12 JUL 88	07 SEP 88 18 MAR 90 119.0	\$544,000.00 \$584,727.00 87.2	07 SEP 88 25 MAR 91	
J	85-0010	Oil Spill Control Mod's Holloway Corp.	X X	X	0 28	R17 RJ	12 MAR 87	17 APR 87 21 JUN 90 100.9	\$1,008,391.00 \$1,889,581.00 96.3	17 APR 87 01 JUN 88	
J	85-0012	Navy Exch & Commissary Store Expans Graham Contracting Co. ASBESTOS.	X X	X	0 37	R16 HA	09 SEP 87	29 SEP 87 12 JUL 89 154.4	\$12,990,000.00 \$13,725,850.00 99.0	29 SEP 87	
M	85-0182	Family Housing Aprs. Bennett Shores Dan Trawick, III Contractors	X X	X	0 5	R10 BL	21 SEP 89	29 SEP 89 16 JUL 91 42.1	\$2,990,016.00 \$3,414,132.00 21.2	29 SEP 89 01 DEC 89	
J	85-0544	Open Storage Shed Connor-Harben Construction Co.	X X	X	0 1	R19 LH	22 AUG 89	19 SEP 89 10 FEB 90 198.6	\$185,600.00 \$178,043.00 100.0	19 SEP 89 31 DEC 90	
J	85-0579	Demo Tank 199K B.A.I. CLAIM APPEAL	X X	X	0 1	R20 HL	02 APR 87	22 APR 87 03 NOV 87 598.5	\$104,786.00 \$104,786.00 72.5	22 APR 87	
J	85-0631	Engine Processing Facility Carlson Fla. Const. Ser. Inc.	X X	X	0 17	R14 JC	10 JAN 89	03 FEB 89 21 AUG 90 91.1	\$10,223,000.00 \$10,334,772.00 99.4	03 MAR 89 01 JAN 90	
J	85-0636	Repair Air Handling Unit NAVHOSP Able Products Company ASBESTOS, LD'S	X X	X	0 4	R20 BC	30 JUL 87	18 SEP 87 20 JAN 89 207.8	\$369,700.00 \$413,682.00 100.0	19 AUG 87 08 MAY 89	
J	85-2480	Traffic Signalization American Lighting & Signalization	X X	X	5 4	R11 HJ	05 JAN 89	06 FEB 89 16 FEB 90 136.3	\$62,700.00 \$87,505.00 93.1	20 MAR 89 01 OCT 89	
M	86-0011	Bowling Center Addition ARKO Construction & Engineer Inc. Awaiting Roof Bond	X X	X	0 15	R10 AM	09 AUG 88	12 SEP 88 03 OCT 89 170.5	\$683,306.00 \$776,251.00 100.0	12 SEP 88 12 SEP 89	
J	86-0089	A/C Eng Fuel Acc Shop Addition David Boland Co.	X X	X	0 27	R17 MH	15 DEC 87	28 MAR 88 02 OCT 89 149.4	\$4,094,000.00 \$4,238,195.00 100.0	28 MAR 88 01 JUL 88	
J	86-0090	P520 Storage Facility, NSC Oneida/Boland Venture	X X	X	0 11	R19 LB	22 SEP 88	16 NOV 88 29 DEC 89 145.3	\$3,741,000.00 \$3,860,269.00 100.0	16 NOV 88 01 SEP 89	
J	86-0875	Helo Op Training Bldg (P-157) Robert Gay Construction Co.	X X	X	0 19	R16 LB	08 DEC 88	30 DEC 88 09 JUL 90 98.7	\$6,079,000.00 \$6,163,336.00 99.0	30 DEC 88 01 FEB 91	

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M	86-0882	Upgrade Underground Fuel Tanks Holloway Corp.	X X	X	0 13	R12 RL	01 NOV 88	18 NOV 88 28 JAN 90 135.6	\$548,766.00 \$607,935.00 83.6	18 NOV 88 01 JUL 90	
M	86-0927	Legal Services Facility SBA/Shah Construction Co. 8(a) PUNCHLIST	X X	X	0 4	R09 LB	18 NOV 88	24 FEB 89 20 APR 90 106.7	\$1,289,720.00 \$1,302,887.00 97.6	24 FEB 89 01 APR 91	14 APR 89
J	86-2468	Rep Primary Electric Circuit Barnes Electric Co. FINAL	X X	X	0 15	R14 HJ	25 AUG 87	03 SEP 87 01 MAR 90 100.0	\$2,440,000.00 \$2,661,151.00 100.0	03 SEP 87 01 NOV 90	
J	86-2475	Repair Family Housing, HC-1 DIVCO	X X	X	0 5	R20 LH	26 MAY 88	25 JUL 88 19 OCT 89 156.8	\$346,400.00 \$372,121.00 100.0	25 JUL 88 07 NOV 89	
M	86-3917	Fire Sys Improve Bldg 1488 & 66 Industrial Fire Sprinklers Inc. PUNCHLIST	X X	X	0 0	R09 LG	26 AUG 87	28 SEP 87 10 APR 88 215.4	\$11,600.00 \$11,600.00 99.1		
M	87-0011	Wastewater Treat Plant Expansion Ortega Industrial Contractors	X X	X	0 11	R12 BA	05 JAN 89	28 FEB 89 17 MAY 90 110.4	\$2,795,955.00 \$2,865,181.00 98.8	28 FEB 89 01 NOV 89	
J	87-0045	Vent Bldg. 200 & 622 Sauer Incorporated	X X	X	1 1	R17 HL	25 JAN 90	16 JAN 90 29 SEP 90 65.2	\$159,540.00 \$159,540.00 12.5	08 MAR 90 01 JAN 91	
J	87-0094	Repair BEG 6A,6B,6C,6D,6F & 6G Sauer Incorporated ASBESTOS,	X X	X	0 5	R16 MH	15 SEP 89	29 SEP 89 20 NOV 90 66.2	\$2,371,769.00 \$2,931,088.00 51.2	19 OCT 89 01 JAN 91	
J	87-0102	Expand/Mod EM Club, Bldg 798 Bentley Construction Co., Inc. ASBESTOS,	X X	X	0 1	R16 LB	19 DEC 89	08 JAN 90 08 DEC 91 25.0	\$1,374,900.00 \$1,374,900.00 21.8	08 JAN 90 15 JUL 90	
C	87-0164	Rehab EM Facility, Bldg 606 Coker Corporation	X X	X	0 0	R13 JH	12 SEP 89	29 SEP 89 12 APR 90 141.5	\$229,101.00 \$229,101.00 100.0	02 SEP 89 01 JAN 91	
J	87-0195	Install Document Disintegrator Peel Builders	X X	X	0 2	R17 BC	27 AUG 88	14 SEP 88 08 AUG 90 94.7	\$87,000.00 \$93,441.00 93.0	14 SEP 88 18 JUN 91	
C	87-0655	EM Club Addition ARKO Construction & Engineering, Inc	X X	X	0 5	R13 JH	07 SEP 89	29 SEP 89 22 JUL 90 93.2	\$765,803.00 \$792,133.00 99.7	29 SEP 89 13 FEB 90	
J	87-2429	Struct Repair Pier 111 Bentley Construction Co., Inc. *, Claims,	X X	X	0 5	R17 RJ	30 JUN 88	28 JUL 88 27 DEC 89 136.2	\$729,150.00 \$833,900.00 100.0	28 JUL 88 15 JUL 89	

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J	87-2435	Replace Roof Med/Dental Bldg 964 Great Western Roofing DEFAULT	X X	X	0 1	R20 RJ	07 SEP 87	28 SEP 87 05 APR 88 530.5	\$168,806.00 \$168,806.00 99.7	28 SEP 87 10 JUL 89	
J	87-2436	Repairs Hangars 122 & 123 R. B. Gay Construction Co. *,	X X	X	0 1	R17 HL	25 AUG 87	23 SEP 87 14 JAN 90 120.0	\$1,951,000.00 \$1,897,679.00 102.8	23 SEP 87 01 JUN 90	
J	87-2440	Reroof Hangar 113 Great Western Roofing DEFAULT,	X X	X	0 1	R20 JC	24 SEP 87	24 SEP 87 18 JAN 88 872.4	\$159,357.00 \$159,357.00 99.8	24 SEP 87 10 JUL 89	
J	87-2447	Takeover Agreement 83-2456 Sun Electric Co. CLAIM APPEAL	X X	X	0 10	R20 HJ		18 MAR 87 29 JAN 88 379.2	\$663,194.00 \$663,194.00 98.0	01 APR 88	
J	87-2459	Repair Air Conditioning Systems Able Products Co. ASBESTOS	X X	X	0 5	R20 HA	20 SEP 87	28 AUG 87 21 JUN 89 156.7	\$437,700.00 \$465,257.00 99.9	28 AUG 87 08 MAY 88	
J	87-2465	Conv of Fuel Truck Loading Docks Delta Industrial Contracting Inc. *,	X X	X	0 4	R17 RJ	22 SEP 88	30 SEP 88 09 FEB 90 128.8	\$304,850.00 \$406,679.00 99.8	30 SEP 88 01 JUL 89	
J	87-2476	Reroof Hangar 115 Great Western Roofing DEFAULT	X X	X	0 1	R20 JC	02 SEP 87	25 SEP 88 18 JAN 88 -257.0	\$158,457.00 \$158,457.00 99.7	25 SEP 88 10 JUL 88	
J	87-2490	Lineshacks Hgr 122, 123 & 124 First Coast Engineers UNILATERAL CLOSE	X X	X	0 4	R20 LB	01 SEP 87	11 SEP 87 08 FEB 88 683.3	\$123,906.00 \$118,312.00 92.1	11 SEP 87 31 DEC 87	
J	87-2495	Security Lighting NED Campco Construction Inc.	X X	X	0 4	R17 RJ	19 JUL 88	05 AUG 88 19 JUL 89 200.0	\$145,774.00 \$158,245.00 100.0	05 AUG 88	
J	87-2514	Flammable Storage Facility Micheal/Mright/Maclean Construction	X X	X	4 4	R11 LH	09 MAY 89	26 JUN 89 02 APR 90 132.5	\$105,990.00 \$117,752.00 89.2	18 SEP 89 12 JUL 90	
J	87-2515	Ladder Guards Poston Chimey & Tower Co., Inc. LOW BIDDER - BOSTON CHIMNEY & TOWER CO.	X X	X	3 0	R17 HL	10 APR 90	04 MAY 90 17 AUG 90 56.2	\$73,428.00 \$73,428.00 40.9	17 MAY 90 26 SEP 90	
M	87-3476	Rpr RED's 337, 451, 1393 & 1394 Robert Gay Construction Co.	X X	X	0 17	R09 AM	26 AUG 87	30 SEP 87 16 JAN 89 212.2	\$1,639,000.00 \$1,978,277.00 97.4	30 SEP 87 01 FEB 91	
M	87-3483	Steam Distribution Modifications Able Products Inc. PUNCHLIST	X X	X	0 0	R09 LB	27 AUG 87	04 SEP 87 16 FEB 88 447.3	\$189,647.00 \$189,647.00 99.7	04 SEP 87 08 MAY 89	

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M	87-3486	Reroof 351, 1388, 1456 & 1326 Great Western Roofing DEFAULT	X X	X	0 0	R20 LB	26 AUG 87	03 SEP 87 17 DEC 87 983.8	\$217,777.00 \$217,777.00 93.7	03 SEP 87 18 NOV 88	
J	88-0186	Navigation/Traffic Aids Military Construction Corporation	X X	X	1 1	R19 LB	30 JAN 90	29 MAR 90 10 OCT 90 48.7	\$149,700.00 \$149,700.00 6.7	31 DEC 91	
J	88-0365	Repair Building 592 Coker Corporation	X X	X	0 3	R11 LB	07 SEP 89	26 SEP 89 09 JUN 90 109.0	\$299,360.00 \$344,941.00 99.7	20 OCT 89 25 AUG 90	
M	88-0528	Wharf Improvements Ed Waters & Sons Contracting Co., Inc CCD in Phases: A) 90/02/18, B) 90/12/09, C) 91/06/20, D) 91/05/09	X X	X	0 19	R10 RW	28 JUN 88	28 JUN 88 30 JUL 91 65.1	\$4,879,000.00 \$5,289,363.00 71.8	28 JUL 88 01 DEC 89	
J	88-0531	Appls & Mods to Pest Control Bldg. 53 Clarence Williams Constructors, Inc.	X X	X	0 2	R16 HA	12 SEP 89	28 SEP 89 11 JUL 90 96.9	\$210,000.00 \$239,179.00 35.5	14 NOV 89 18 SEP 90	
J	88-0642	Repave Parking Lot/Roads, AFRC Anderson Columbia, Inc.	X X	X	0 1	R19 LB	18 JUL 89	28 AUG 89 03 APR 90 141.3	\$75,785.00 \$75,785.00 99.0	28 AUG 89 24 MAY 90	
J	88-0643	Replace Roof Bldg. 938, AFRC Whitton Construction Co.	X X	X	0 1	R19 PH	12 SEP 89	29 SEP 89 13 DEC 89 368.0	\$224,138.00 \$229,756.00 102.3	18 OCT 89 01 DEC 89	
J	88-0648	Upgrade Sludge Drying Beds Sauer Incorporated	X X	X	0 2	R19 HL	14 SEP 89	12 JAN 90 24 OCT 90 60.0	\$414,435.00 \$415,792.00 28.9	12 FEB 90 01 JAN 91	
J	88-0652	Upgrade Hospital Elevators Connor-Harben Construction Co.	X X	X	0 0	R14 BC	07 SEP 89	28 SEP 89 11 OCT 90 73.3	\$445,000.00 \$445,000.00 23.4	28 SEP 89 31 DEC 90	
M	88-0689	Surface Ship ASM Analysis Center Phoenix Commercial Corp.	X X	X	0 1	R09 BL	17 OCT 89	03 NOV 89 18 JUL 90 93.8	\$820,000.00 \$820,903.00 43.0	20 NOV 89 01 MAR 90	06 DEC 89
C	88-0719	Airfield Marking Roads & Runways Stripping Service, Inc FINAL	X X	X	0 2	R13 J1	22 AUG 89	19 SEP 89 10 FEB 90 93.8	\$169,790.00 \$176,089.00 100.0	19 SEP 89	
C	88-2272	Simulated Carrier Deck Lighting Regency Electric Co.	X X	X	0 3	R13 J1	25 AUG 88	23 SEP 88 28 JAN 90 131.5	\$238,750.00 \$266,311.00 98.4	23 SEP 88 01 NOV 90	
J	88-2427	Install 125A Electrical Serv Military Construction Corporation	X X	X	0 0	R17 HJ	11 SEP 89	26 SEP 89 25 NOV 89 465.0	\$23,977.00 \$23,977.00 99.7	31 DEC 90	

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J	BB-2432	Paint Housing Units	U.S. Sealcoating Inc.		X X	X	0 15	R11 LH	23 SEP 88	29 SEP 88 01 MAY 90 110.7	\$246,356.00 \$372,875.00 96.5	29 SEP 88 16 MAY 90	
J	BB-2440	Electric Equipment Maintenance	Sun Electric		X X	X	1 7	R14 HJ	13 SEP 89	20 SEP 89 07 JUN 90 109.6	\$98,900.00 \$145,393.00 81.2	16 OCT 89 25 MAR 91	
J	BB-2441	Elect Pwr for Aircraft Support Conso	Regency Electric Company, Inc.		X X	X	1 1	R14 HJ	29 AUG 89	13 SEP 89 25 JUL 90 92.7	\$198,320.00 \$235,083.00 70.6	03 OCT 89 01 NOV 90	
J	BB-2450	Renovate Housing Kitchens	First Coast Engineers, Inc.		X X	X	2 2	R11 LH	08 AUG 89	08 SEP 89 17 MAR 90 156.3	\$136,750.00 \$144,169.00 93.6	08 NOV 89 26 APR 90	
J	BB-2451	Fire House Addition/Hgr 1000	Peel Builders, Inc.		X X	X	0 2	R16 BC	13 SEP 89	25 SEP 89 10 JUN 90 108.5	\$136,291.00 \$138,791.00 84.3	11 OCT 89 18 JUN 91	
J	BB-2452	Street Light Replacement	Continental Engineering		X X	X	6 2	R14 HL	11 MAY 89	08 SEP 89 28 MAY 90 113.4	\$74,747.00 \$84,353.00 85.4	16 OCT 89 01 JAN 90	
J	BB-2461	Const Fire House	Pentley Construction Co., Inc.		X X	X	1 1	R17 RJ	15 SEP 89	13 OCT 89 25 JUN 90 102.7	\$188,800.00 \$188,800.00 98.0	30 OCT 89 15 JUL 90	
J	BB-2472	Industrial Waste Treat Plant	Sauer Incorporated		X X	X	0 6	R16 HL	08 AUG 89	11 SEP 89 04 MAY 90 125.1	\$174,553.00 \$179,241.00 100.0	22 SEP 89 01 JAN 90	
J	BB-2474	Fire Pump Generators	W. H. Howell & Associates, Inc.		X X	X	2 1	R14 HA	06 JUN 89	07 JUL 89 26 APR 90 122.9	\$222,750.00 \$222,750.00 98.8	27 JUL 89 06 JAN 90	
J	BB-2476	Replace Roof Bldg 101V	Reaves Roofing, Inc.		X X	X	0 0	R11 MH	29 AUG 89	12 SEP 89 25 JAN 90 217.0	\$164,556.00 \$164,556.00 99.7	30 OCT 89 01 JUN 90	
J	BB-2480	Addition to Print Shop 721	Alpha Service, Inc.		X X	X	3 0	R16 HL	14 SEP 89	26 SEP 89 10 MAR 90 169.1	\$59,004.00 \$59,004.00 93.2	20 OCT 89 26 APR 90	
C	BB-6101	General HVAC Work	Lee Systems, Inc.		X X	X	6 1	R13 JM	20 JUN 89	07 JUL 89 10 FEB 90 165.1	\$262,260.00 \$264,293.00 99.1	31 JUL 89 09 FEB 91	
C	BB-6104	Fuel Farm Operations Building	First Coast Engineers		X X	X	0 2	R18 DB	25 AUG 88	20 SEP 88 24 APR 89 300.9	\$172,100.00 \$173,643.00 99.6	20 SEP 88 28 OCT 89	

WARRANTY ITEMS

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C	BB-6110	Renovate UEPH Equipment Rooms Coker Corp	X X	X	0 5	R13 EH	30 AUG 88	22 SEP 88 17 MAY 90 107.6	\$696,222.00 \$711,145.00 102.2	22 SEP 88 15 JUN 89	
C	BB-6114	Rep. Air Comp., Bldg. 862 Sauer Incorporated	X X	X	0 2	R18 JH	14 SEP 89	28 SEP 89 19 MAR 90 161.0	\$51,600.00 \$53,146.00 100.0	12 OCT 89 01 JAN 91	
C	BB-6121	Install 400hz Gen., Bldg. 1820 Military Construction Corporation	X X	X	0 2	R13 J1	14 SEP 89	29 SEP 89 14 MAR 90 166.3	\$63,700.00 \$71,287.00 98.0	16 OCT 89 25 JAN 91	
C	BB-6123	Repair HVAC System, Hqr. 67 B & G Refrigeration Co., Inc.	X X	X	0 1	R13 EH	29 AUG 89	15 SEP 89 28 JUN 90 101.4	\$385,000.00 \$407,826.00 93.2	20 NOV 89 01 MAY 91	
C	BB-6124	Convert Bldgs. from 4.16kv Miller Electric Co.	X X	X	4 2	R18 J1	07 SEP 89	18 SEP 89 13 SEP 90 79.7	\$287,000.00 \$364,648.00 34.3	06 OCT 89 01 OCT 90	
M	BB-6200	Dealkalizer Instal Bldg 250 & 1430 Miami Comfort Air, Inc. PUNCLIST,	X X	X	0 2	R09 LB	07 JUN 88	29 JUL 88 07 JUL 89 100.0	\$141,800.00 \$147,982.00 99.3	26 AUG 88 06 OCT 89	
M	BB-6203	Repl Water Piping, SIMA Bldg 1488 Pace Constructors, Inc. SUR BOND, CLAIM, PUNCLIST	X X	X	0 1	R09 LG	01 SEP 88	13 SEP 88 27 MAR 89 336.9	\$243,500.00 \$243,500.00 99.8	13 SEP 88	
M	BB-6209	Reps & Alterations to Bldg 36 Military Construction Corporation SELECTED BIDDING	X X	X	2 0	R10 GA	25 MAY 90	31 MAY 90 13 OCT 90 23.7	\$323,907.00 \$323,907.00 1.2	05 JUN 90 31 DEC 90	
M	BB-6215	Pave & Drainage Unicon Group LD'S to be assessed	X X	X	6 1	R10 RW	25 MAY 89	05 JUL 89 26 JAN 90 176.6	\$203,370.00 \$211,870.00 100.0	11 AUG 89	
M	BB-6218	Repairs to Bldg 13 Military Construction Corporation	X X	X	1 4	R08 LG	28 AUG 89	13 SEP 89 28 JUN 90 101.4	\$236,531.00 \$276,661.00 97.6	02 OCT 89 25 JAN 91	24 APR 90
F	BB-6229	Fire Protection Improvements, NAS Military Construction Corporation FINAL	X X	X	0 7	R10 LG	08 SEP 88	30 SEP 88 31 JAN 90 100.0	\$198,322.00 \$234,217.00 100.0	12 OCT 88 25 JAN 90	
M	BB-6233	Install Security Fence Newsom Fence Company, Inc.	X X	X	4 3	R12 LG	11 JUL 89	15 AUG 89 23 JAN 90 199.4	\$159,990.00 \$168,066.00 99.7	13 SEP 89 15 JAN 91	16 NOV 89
M	BB-6236	Fire Prot Sys Rpr 90/420 Desjardin Electrical Service, Inc.	X X	X	0 2	R12 AM	15 SEP 89	28 SEP 89 17 JUN 90 105.7	\$17,426.00 \$20,000.00 62.5	21 FEB 90	29 NOV 89

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J	89-0011	Industrial Sewer Cross Conn Anderson Columbia Envr.	X X	X	0 5	R19 HA	26 SEP 89	29 SEP 89 12 MAY 90 122.7	\$1,979,000.00 \$2,005,739.00 99.7	19 OCT 89 28 NOV 89	
J	89-0178	Repair Taxiway Alpha Con/Seal, Inc.	X X	X	0 6	R19 LB	26 JAN 89	08 MAR 89 02 DEC 89 178.8	\$189,825.00 \$267,136.00 99.9	08 MAR 89 13 SEP 89	
J	89-0185	Engine Maintenance Shop Military Construction Corporation NTE P00006 PENDING NEGOTIATIONS	X X	X	0 10	R11 MH	09 MAR 89	21 MAR 89 19 JAN 91 70.0	\$3,897,000.00 \$3,998,621.00 57.5	10 APR 89 31 DEC 90	
M	89-0315	Repair Ribault Bay Village Housing Hutchinson Plumbing Co.	X X	X	3 1	R09 GA	21 NOV 89	02 JAN 90 13 NOV 90 57.5	\$719,989.00 \$719,989.00 1.5	02 JAN 90 01 SEP 90	
M	89-0316	Replace Stair Treads & Walkways, FTC Sauer Incorporated Punchlist	X X	X	0 1	R10 GA	17 AUG 89	14 SEP 89 18 APR 90 100.0	\$185,552.00 \$185,552.00 99.8	02 OCT 89 01 JAN 91	18 OCT 89
C	89-0611	Renovate Power Check Pad F. S. Associates, Inc.	X X	X	0 1	R13 JM	07 SEP 89	29 JUL 89 27 MAR 90 140.2	\$68,917.00 \$76,495.00 100.0	29 JUL 89 21 SEP 90	
M	89-0638	Modify Control & Dampers FTF Southeastern Chiller Services, Inc. pending mod from SDIV	X X	X	0 1	R10 GA	12 SEP 89	29 SEP 89 12 APR 90 141.5	\$149,737.00 \$150,751.00 99.9	29 SEP 89 24 OCT 89	
J	89-2433	Maint of Steam Distribution Unicon Group	X X	X	2 3	R11 BC	13 SEP 89	22 SEP 89 07 AUG 90 88.7	\$244,495.00 \$336,122.00 74.4	07 NOV 89 22 SEP 90	
J	89-2435	Maint Painting for Various Bldgs Jax Coating	X X	X	3 0	R16 LH	30 AUG 89	27 SEP 89 09 APR 90 143.3	\$141,290.00 \$141,290.00 101.0	16 OCT 89	
J	89-2437	Replace Roofs Bldg 4, 11, 354 Brazos Roofing	X X	X	1 2	R11 MH	24 AUG 89	11 SEP 89 25 MAY 90 114.8	\$393,919.00 \$447,414.00 95.2	20 SEP 89 01 MAY 90	
J	89-2438	Repair A/C's Various Bldgs Sauer Incorporated	X X	X	0 4	R14 JC	14 SEP 89	27 SEP 89 07 OCT 90 74.1	\$529,900.00 \$528,244.00 62.5	11 OCT 89 01 JAN 91	
J	89-2439	Replace Roofs Southeast Roofing & Sheetmetal Co.	X X	X	1 2	R11 MH	24 AUG 89	12 SEP 89 15 MAY 90 119.6	\$527,900.00 \$558,158.00 100.0	05 OCT 89 01 JUL 90	
J	89-2441	Site Prep Mobile Van DIVCO ASBESTOS, *	X X	X	3 1	R16 LH	20 JUN 89	20 JUL 89 16 DEC 89 232.9	\$41,300.00 \$48,631.00 100.0	04 AUG 89 07 NOV 80	

ROICC JAXA PROCUREMENT RECORD AS OF JULY 2, 1990

*** FOR OFFICIAL USE ONLY ***

SITE	CONT NO	TITLE CONTRACTOR	REMARKS	\$ F&S	CBD	AMEND MODS	PH CR	BID DATE	AWARD COMPL % TIME	AWARD AMOUNT CURRENT VALUE % WIP	NTP LTR INSURE	PROG SCHD
J	89-2442	Repair Fire Protection & Water Dist. Coker Corporation		X X	X	2 0	R17 HA	10 APR 90	23 MAY 90 04 DEC 90 20.5	\$199,700.00 \$199,700.00 2.5	25 AUG 90	
J	89-2443	Replace Venturi Meters Southern Technologies, Inc.		X X	X	1 0	R19 HA	01 MAY 90	19 JUN 90 30 DEC 90 6.7	\$72,600.00 \$72,600.00 0.0		
J	89-2444	Repl PCB Transformers C.10	Low Bidder, Delta Enterprises \$24,185.00. Found nonresponsive.	X X	X	1 0	R14 HJ	13 SEP 89	13 SEP 89 18 JUN 90 105.0	\$161,481.00 \$161,481.00 102.2	06 OCT 89 26 OCT 90	
J	89-2445	Repair Sanitary Lines, Hosp. Area J & J Construction Co.		X X	X	0 0	R14 BC	03 APR 90	11 JUN 90 24 SEP 90 20.0	\$24,999.00 \$24,999.00 0.0	11 JUN 90	
J	89-2454	Widen/Pave Allegheny Rd. Anderson Columbia, Inc.	LOW BIDDER - GOSHEN EXCAVATORS \$23,120.00. Disqualified, awarded to 2nd low	X X	X	0 1	R19 LB	05 SEP 89	20 SEP 89 03 APR 90 146.2	\$39,950.00 \$39,950.00 12.5	18 OCT 89 01 APR 90	
J	89-2456	Various Door Repairs National Door Service, Inc.		X X	X	4 0	R19 HL	29 MAY 90	27 JUN 90 09 MAR 91 2.0	\$407,257.00 \$407,257.00 0.0		
J	89-2457	Fiber Optic Regency Electric	LOW BIDDER - NATIONAL DOOR SERVICE, INC. \$407,257.00	X X	X	0 0	R14 PH	10 MAY 89	11 MAY 89 25 JUL 89 556.0	\$44,293.00 \$44,293.00 0.0	24 MAY 89	
J	89-2471	Repair Heads, NADEP Coker Corporation		X X	X	1 2	R11 JC	05 SEP 89	29 SEP 89 28 JUL 90 91.4	\$339,700.00 \$346,696.00 93.7	11 OCT 89 25 AUG 90	
J	89-2472	Demolish Bldg 911 Paragon Investeent Corp		X X	X	0 4	R11 HL	11 SEP 89	27 SEP 89 23 APR 90 133.7	\$134,400.00 \$236,179.00 99.9	13 NOV 89 19 OCT 90	
J	89-2477	Landscape Various Areas Military Construction Corporation		X X	X	1 4	R17 LH	07 SEP 89	20 SEP 89 04 MAY 90 91.6	\$167,377.00 \$187,817.00 100.0	02 OCT 89 25 JAN 91	
J	89-2483	Repair Sanitary Sewer J. C. Kimberly Co.	final	X X	X	1 0	R19 PH	13 SEP 89	25 SEP 89 08 APR 90 143.6	\$183,653.00 \$183,653.00 70.8	16 OCT 89 10 MAY 90	
J	89-2485	Vent Fuel Tanks W. W. Gay Mechanical Contr, Inc.		X X	X	0 3	R11 HA	13 SEP 89	20 SEP 89 16 JUN 90 105.9	\$342,700.00 \$357,294.00 89.6	06 OCT 89 01 JUN 91	
J	89-2491	Correct A/C Pip Bldg. 845 M. K. MECHANICAL, INC.		X X	X	3 0	R11 HL	21 DEC 89	23 JAN 90 08 JUN 90 117.6	\$185,000.00 \$185,000.00 102.7	12 FEB 90 21 DEC 90	

Awarded to 3rd low bidder. 1st low bidder-1S rej. 2nd low claimed error.

ROICC JAXA PROCUREMENT RECORD AS OF July 2, 1990

*** FOR OFFICIAL USE ONLY ***

SITE	CONT NO	TITLE CONTRACTOR REMARKS	\$ F&S	CBD	AMEND MODS	PM CR	BID DATE	AWARD COMPL Z TIME	AWARD AMOUNT CURRENT VALUE Z WIP	NTP LTR INSURE	PROG SCHED
J	89-2498	400 AMP Feeder Bldg. 101-U Thompson Electric Co.	X X	X	3 1	R17 HJ	30 JAN 90	01 MAR 90 01 MAY 90 201.6	\$13,700.00 \$13,700.00 99.3	01 MAR 90 13 DEC 90	
J	89-2499	HVAC-Hangers 122, 123 & 124 Weather Engineers	X X	X	0 0	R17 HA	27 SEP 89	29 SEP 89 27 JAN 90 230.0	\$8,600.00 \$8,600.00 100.0	03 OCT 89	
C	89-6101	Vinyl Blding Yellowwater Housing Collins Siding Co.	X X	X	2 1	R18 EH	31 AUG 89	15 SEP 89 10 OCT 90 74.4	\$531,154.00 \$550,837.00 22.7	06 OCT 89 01 JUL 90	
C	89-6102	Replace Runway Electric Feeder Military Construction Corporation FINAL	X X	X	0 1	R13 J1	15 SEP 89	29 SEP 89 11 FEB 90 92.6	\$125,907.00 \$78,328.00 160.7	16 OCT 89 25 JAN 91	
C	89-6103	Convert HVAC, Hgr. 8225 B & B Refrigeration Co. ASBESTOS,	X X	X	0 1	R18 JM	15 SEP 89	15 SEP 89 15 APR 90 136.8	\$189,800.00 \$194,140.00 99.4	02 OCT 89 01 MAY 91	
C	89-6105	Replacement Cooling Towers Sauer Incorporated	X X	X	0 0	R18 EH	08 SEP 89	15 SEP 89 28 MAY 90 113.7	\$108,990.00 \$108,990.00 99.1	02 OCT 89 09 JAN 90	
C	89-6106	Solar Fila - Family Housing Solar Dynamics	X X	X	4 0	R18 J1	16 MAY 89	12 JUL 89 14 NOV 89 284.0	\$42,317.00 \$42,317.00 0.0	04 AUG 89	
C	89-6111	CPU Mech Rm Repairs Bldg 345 A. Chestang Construction Co.	X X	X	0 0	R13 DB	07 SEP 89	27 SEP 89 20 APR 90 135.6	\$68,000.00 \$68,000.00 104.6	24 OCT 89 15 JUN 90	
C	89-6118	Rep PavementR/W 1BL Anderson Columbia Co., Inc.	X X	X	0 0	R13 JM	14 SEP 89	29 SEP 89 11 FEB 90 204.4	\$39,300.00 \$39,300.00 99.2	12 OCT 89 01 APR 90	
C	89-6121	Replace A/C System Bldg 832 Sauer Incorporated	X X	X	0 0	R13 EH	12 SEP 89	28 SEP 89 11 APR 90 142.1	\$62,638.00 \$62,638.00 95.8	12 OCT 89 01 JAN 91	
C	89-6122	BEG Repairs Bldg 605 Thomas May Construction Co.	X X	X	1 1	R18 JM	06 SEP 89	22 JUL 89 03 AUG 90 91.5	\$124,750.00 \$196,838.00 99.1	12 OCT 89 15 MAR 91	
C	89-6123	Install 400HZ Inverts Bldg. 67 Leo's Construction and Fence, Inc. Low bidder, Leo's Construction & Fence Inc. \$74,000.00	X X	X	0 1	R13 J1	01 MAY 90	21 MAY 90 02 NOV 90 25.5	\$74,000.00 \$74,000.00 6.8	24 AUG 90	
C	89-6127	Replace A/C Sys Bldg 626 Lee Systems Inc.	X X	X	0 1	R13 JM	14 SEP 89	20 SEP 89 22 FEB 90 183.9	\$54,350.45 \$55,167.45 99.7	16 OCT 89 09 FEB 91	

ROICC JAXIA PROCUREMENT RECORD AS OF July 2, 1990

*** FOR OFFICIAL USE ONLY ***

SITE	CONT NO	TITLE CONTRACTOR REMARKS	\$ P&S	CBD	AMEND MODS	PM CR	BID DATE	AWARD COMPL % TIME	AWARD AMOUNT CURRENT VALUE % WIP	NTP LTR INSURE	PROB SCHD
C	89-6128	Steam Line Repairs B & B Refrigeration	X X	X	1 0	R13 JM	17 AUG 89	08 SEP 89 22 MAR 90 152.3	\$185,400.00 \$185,400.00 99.8	20 NOV 89 01 MAY 91	
C	89-6131	103RD Fuel Line Repair Anderson Columbia THIS IS INDEFINITE QUANTITY CONTRACT WITH A MAXIMUM OF \$85,000.00	X X	0	0 2	R13 BC	28 SEP 89	29 SEP 89 14 JUL 90 95.8	\$49,150.00 \$88,950.00 84.3	12 OCT 89	
M	89-6200	Rep Boiler Plant 1241 Southern Tech	X X	X	1 6	R12 LB	13 SEP 89	25 SEP 89 12 NOV 90 67.8	\$1,592,700.00 \$1,695,214.00 13.6	12 OCT 89 01 APR 90	30 APR 90
M	89-6201	Water Plant Aerator Replacement Sauer Incorporated	X X	X	0 2	R12 BA	06 SEP 89	14 SEP 89 07 APR 90 142.0	\$75,180.00 \$87,434.00 98.9	02 OCT 89 01 JAN 91	07 MAR 90
M	89-6204	Repair Parking N. Main Street Walding Company	X X	X	1 0	R10 RW	07 SEP 89	22 SEP 89 15 JUN 90 106.4	\$98,760.00 \$98,760.00 100.0	23 OCT 89	
M	89-6205	Reps Salt Water Pump Station Sauer Incorporated	X X	X	0 1	R08 BA	11 SEP 89	21 SEP 89 14 OCT 90 73.2	\$113,990.00 \$241,154.00 22.8	27 OCT 89 01 JAN 91	30 JAN 90
M	89-6207	1ap Off-Station Housing Parking Walding Company punchlist	X X	X	0 0	R09 RW	15 SEP 89	29 SEP 89 12 APR 90 141.5	\$138,730.00 \$138,730.00 99.5	12 OCT 89 15 MAY 90	
M	89-6208	Rep Oily Waste Treatment Plant Sauer Incorporated	X X	X	1 0	R12 BA	12 SEP 89	26 SEP 89 11 OCT 90 73.4	\$131,495.00 \$131,495.00 9.5	11 OCT 89	29 NOV 89
M	89-6210	Repair/Paint 400 Units, Off-8ta Mr. Paint	X X	X	4 4	R09 BA	30 AUG 89	13 SEP 89 12 JAN 91 60.1	\$633,111.00 \$833,836.00 61.4	12 OCT 89 05 JAN 91	04 DEC 89
M	89-6211	BED HVAC Cont. Retrofit Leo's Construction	X X	X	1 2	R12 RL	05 SEP 89	18 SEP 89 18 JUL 90 94.7	\$95,447.00 \$150,184.00 89.9	02 OCT 89 24 AUG 90	05 MAR 90
M	89-6212	IMP Family Hsg Landscape The Big Tree Company	X X	X	1 1	R08 AM	08 SEP 89	28 SEP 89 20 APR 90 135.8	\$464,000.00 \$475,137.00 100.0	20 NOV 89 09 DEC 89	26 DEC 89
M	89-6213	Telemetry Lift Station Southern Technologies	X X	X	5 2	R12 LS	11 MAY 89	28 JUN 89 08 DEC 89 226.4	\$46,500.00 \$49,774.00 86.4	31 JUL 89	24 JUL 89
M	89-6223	Waterfront Structural Repairs Piling & Structures	X X	X	1 2	R10 RW	11 SEP 89	26 SEP 89 14 JAN 91 58.7	\$587,000.00 \$755,337.00 34.4	06 OCT 89	

ROICC JAXA PROCUREMENT RECORD AS OF July 2, 1990

*** FOR OFFICIAL USE ONLY ***

SITE	CONT NO	TITLE	CONTRACTOR	REMARKS	\$ PLS	CBD	AMEND MODS	PM CR	BID DATE	AWARD COMPL % TIME	AWARD AMOUNT CURRENT VALUE % WIP	NTP LTR INSURE	PROG SCHED
M	89-6227	Rep. Bym, Bldg. 1391	Alpha Services, Inc.		x	x	1	R08	15 SEP 89	28 SEP 89 07 JUN 90 109.9	\$232,158.00 \$247,638.00 96.9	19 OCT 89 26 APR 90	09 MAY 90
M	89-6228	Repair Quarters 1045-B Off-Sta	Peal Builders Inc.	FINAL	x	x	0	R09	07 SEP 89	20 SEP 89 12 MAR 90 100.0	\$67,000.00 \$66,268.00 100.0	11 OCT 89 18 JUN 90	
M	89-6229	Repair HVAC in DP Bldg. 90	Lee Systems, Inc.		x	x	38	R12	11 SEP 89	28 SEP 89 10 JUN 90 108.6	\$150,560.00 \$150,560.00 97.6	16 OCT 89 09 FEB 91	19 MAR 90
M	89-6230	Reroof DP. Bldg. 90	S. P. Peterson Co.		x	x	1	R12	15 SEP 89	27 SEP 89 06 JUN 90 110.3	\$28,700.00 \$38,974.00 77.0	28 NOV 89 19 FEB 91	29 NOV 89
M	89-6231	Replace Roof Bldg 1343, NAB	Waterproofing Specialists, Inc.	PUNCHLIST	x	x	1	R09	11 SEP 89	21 SEP 89 11 MAR 90 100.0	\$48,000.00 \$58,422.00 97.6	12 OCT 89 08 MAY 90	26 OCT 89
M	89-6234	Rep/Imp Hsg. Office, Bldg. 289	Environmental Services & Contractors		x	x	1	R08	11 SEP 89	29 SEP 89 07 MAY 90 125.5	\$171,478.00 \$233,532.00 95.5	14 NOV 89 14 AUG 90	28 MAR 90
J	90-2432	Construct ITT/Sato Bldg.	Coker Corporation	Select Bids	x	x	1	R17	08 MAR 90	15 MAR 90 26 SEP 90 55.9	\$169,700.00 \$169,700.00 70.7	23 MAR 90 25 JUN 90	
J	90-2433	Fitness Center Alterations, Bldg 867	Coker Corporation		x	x	0	R16	08 MAR 90	30 MAR 90 12 AUG 90 69.6	\$119,754.00 \$119,754.00 29.2	06 APR 90	
J	90-2440	Enlarge Antenna Field	Newsom Fence Company, Inc.	Small Purchase	x	x	0	R16		11 JAN 90 06 FEB 90 661.5	\$2,447.00 \$2,447.00 0.0		
J	90-2468	Site Preparation for New Radiology R	Military Construction Corporation	SMALL PURCHASE	x	x	0	R14	22 FEB 90	27 MAR 90 01 JUN 90 147.0	\$23,907.00 \$23,907.00 41.8	27 MAR 90 31 DEC 90	
J	90-2471	Brig Cell Lights	M.E. Roman Electric	SMALL PURCHASE	x	x	0	R11	15 MAR 90	02 APR 90 21 JUL 90 82.7	\$4,500.00 \$4,500.00 0.0	02 APR 90	
M	90-6247	Repair Paving Massey Ave.	Vallencourt Construction Co., Inc.		x	x	1	R10	10 APR 90	16 APR 90 30 JUL 90 73.3	\$31,247.00 \$31,247.00 0.0	24 APR 90	

Report contains 155 contracts valued at \$170,683,942.45.

APPENDIX H

DATA BASE II

TABLES FROM FIELD DATA

CONTRACT NO. - 89-3087

PROJECT TITLE - EXTERIOR RENOVATIONS, BLDG 70
NAS ATLANTA, GA

GOVERNMENT ESTIMATE - \$56,900

LOW BIDDER - BFL CONTRACTING CORP. - \$46,475

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	CREQ	(300)	10
2	TIME	0	55
3	CREQ	(513)	14
		-----	-----
		(813)	79

CONTRACT NO. - 88-3069

PROJECT TITLE - REPAIRS AND ALTERATIONS TO BLDG. 63
NAS ATLANTA, GA

GOVERNMENT ESTIMATE - \$660,967

LOW BIDDER - JOHN PENNEBAKER, CO. - \$473,947

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	DSGN	588	0
2	ADMN	0	0
3	UNFO	23,467	52
		-----	-----
		24,055	52

CONTRACT NO. - 86-2388

PROJECT TITLE - GOLF CART STORAGE SHED
NAS CECIL FIELD, FL

GOVERNMENT ESTIMATE - \$133,607

LOW BIDDER - EDGAR THOMAS CORP. - \$109,257

<u>MODIFICATIONS</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	DSGN	43,234	150
2	TIME	0	107
		-----	-----
		43,234	257

CONTRACT NO. - 84-0332

PROJECT TITLE - REPLACE RUNWAY LIGHTING REGULATORS
NAS CECIL FIELD, FL

GOVERNMENT ESTIMATE - \$265,000

LOW BIDDER - EAST BAY ELECTRIC, INC. - \$176,928

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	ADMN	0	0
2	DSGN	0	0
3	DSGN	42,208	90
4	ADMN	0	0
5	DSGN	915	30
		-----	-----
		43,123	120

CONTRACT NO. - 87-6332

PROJECT TITLE - YELLOW WATER HOUSING, ELECT. DISTRIBUTION
NAS CECIL FIELD, FL

GOVERNMENT ESTIMATE - \$145,184

LOW BIDDER - CAMPCO CONTRACTORS - \$121,774

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	VALE	(1,474)	60
2	UNFO	3,067	30
		-----	-----
		1,593	90

CONTRACT NO. - 88-2470

PROJECT TITLE - REPLACE ROOFING, BARRACKS
NAS JACKSONVILLE, FL

GOVERNMENT ESTIMATE - \$286,273

LOW BIDDER - WATERPROOFING SPECIALIST - \$253,660

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	UNFO	22,439	30
2	TIME	0	58
		-----	-----
		22,439	88

CONTRACT NO. - 88-2431

PROJECT TITLE - REPAIRS TO A/C SYSTEMS
NAS JACKSONVILLE, FL

GOVERNMENT ESTIMATE - \$330,000

LOW BIDDER - WEATHER ENGINEERS, INC. - \$229,086

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	UNFO	10,000	0
2	UNFO	2,233	7
3	ADMN	0	0
4	DSGN	1,943	0
		-----	-----
		14,176	7

CONTRACT NO. - 87-2522

PROJECT TITLE - BLDG. EXTENSION & INSTALL BRIDGE CRANES
NAS JACKSONVILLE, FL

GOVERNMENT ESTIMATE - \$193,447

LOW BIDDER - EDGAR THOMAS CORP. - \$130,000

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	UNFO	27,500	230
		-----	-----
		27,500	230

CONTRACT NO. - 89-2427

PROJECT TITLE - REPAIR BARRACKS 6E
NAS JACKSONVILLE, FL

GOVERNMENT ESTIMATE - \$641,780

LOW BIDDER - COKER CORPORATION - \$645,707

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	UNFO	558	0
2	UNFO	1,750	0
3	CREQ	6,184	0
4	DSGN	39,469	50
5	UNFO	(90)	0
6	DSGN	1,386	0
7	DSGN	9,097	30
8	DSGN	10,228	0
9	DSGN	12,806	14
		-----	-----
		81,388	94

CONTRACT NO. - 89-2477

PROJECT TITLE - LANDSCAPE VARIOUS AREAS
NAS JACKSONVILLE, FL

GOVERNMENT ESTIMATE - \$192,276

LOW BIDDER - MILITARY CONSTRUCTION CORP. - \$167,377

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	ADMN	0	0
2	DSGN	302	0
3	SCPE	6,806	0
4	DSGN	13,332	0
		-----	-----
		20,440	0

CONTRACT NO. - 81-0924

PROJECT TITLE - MAINTENANCE HANGAR
NAS CECIL FIELD, FL

GOVERNMENT ESTIMATE - NOT AVAILABLE

LOW BIDDER - GRAHAM CONTRACTING, INC. - \$4,888,000

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	DSGN	5,219	0
2	DSGN	3,969	0
3	DSGN	10,152	0
4	DSGN	6,493	0
5	DSGN	1,892	0
6	DSGN	17,315	0
7	CREQ	2,373	0
8	DSGN	11,200	0
9	DSGN	31,200	7
10	DSGN	55,421	30
11	CREQ	12,797	15
12	DSGN	12,552	0
13	DSGN	6,238	0
14	DSGN	3,651	5
15	DSGN	9,982	0
16	DSGN	4,299	0
17	ADMN	0	0
18	CLMR	9,316	0
		-----	-----
		204,069	57

CONTRACT NO. - 82-0332

PROJECT TITLE - BRIG
NAS JACKSONVILLE, FL

GOVERNMENT ESTIMATE - \$2,629,306

LOW BIDDER - R. B. GAY CONSTRUCTION - \$2,850,000

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	DSGN	28,608	20
2	UNFO	6,317	10
3	DSGN	920	2
4	DSGN	7,702	10
5	DSGN	22,600	15
6	DSGN	13,258	30
7	DSGN	1,373	15
8	DSGN	823	0
9	DSGN	3,894	0
10	ADMN	0	0
11	DSGN	2,334	0
12	DSGN	4,813	185
13	DSGN	0	17
14	DSGN	1,000	0
15	DSGN	2,784	91
		-----	-----
		96,426	395

CONTRACT NO. - 76-0781

PROJECT TITLE - AIRCRAFT ACOUSTICAL ENCLOSURE
NAS CECIL FIELD, FL

GOVERNMENT ESTIMATE - NOT AVAILABLE

LOW BIDDER - CONNOR-HARBEN CONSTRUCTION CO. - \$4,148,000

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	DSGN	10,117	12
2	UNFO	1,243	0
3	HDQT	5,644	0
4	UNFO	9,800	12
5	DSGN	3,208	0
6	TIME	0	90
7	DSGN	1,892	28
8	UNFO	4,410	17
9	UNFO	2,788	0
10	DSGN	1,282	0
11	DSGN	3,383	0
		-----	----
		43,767	159

CONTRACT NO. - 86-0927

PROJECT TITLE - LEGAL SERVICES FACILITY
NAVSTA MAYPORT, FL

GOVERNMENT ESTIMATE - NOT AVAILABLE

LOW BIDDER - SHAH CONSTRUCTION CO., INC. - \$1,289,720

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	DSGN	5,912	0
2	CREQ	952	0
3	CREQ	6,303	15
4	UNFO	10,813	0
		-----	-----
		23,980	15

CONTRACT NO. - 89-0185

PROJECT TITLE - ENGINE MAINTENANCE SHOP
NAS JACKSONVILLE, FL

GOVERNMENT ESTIMATE - NOT AVAILABLE

LOW BIDDER - MILITARY CONSTRUCTION CORP. - \$3,897,000

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	ADMN	0	0
2	CREQ	2,186	28
3	DSGN	7,267	12
4	ADMN	0	0
5	DSGN	29,969	35
6	DSGN	167,000	0
7	DSGN	35,279	30
8	DSGN	24,713	21
9	DSGN	1,807	0
10	UNFO	400	0
		-----	-----
		268,621	126

CONTRACT NO. - 87-0011

PROJECT TITLE - WASTEWATER TREATMENT PLANT EXPANSION
NAVSTA MAYPORT, FL

GOVERNMENT ESTIMATE - \$2,450,000

LOW BIDDER - ORTEGA INDUSTRIAL CO. - \$2,795,955

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	UNFO	10,000	0
2	DSGN	9,847	4
3	UNFO	(3,794)	10
4	DSGN	3,389	4
5	UNFO	(185)	30
6	UNFO	19,077	16
7	DSGN	22,825	30
8	UNFO	(4,677)	0
9	UNFO	6,535	7
10	UNFO	6,209	7
11	UNFO	0	0
12	DSGN	1,797	14
13	CRIT	8,675	22
		-----	-----
		79,698	144

CONTRACT NO. - 86-2468

PROJECT TITLE - REPAIR TO PRIMARY ELECTRICAL CIRCUITS
NAS JACKSONVILLE, FL

GOVERNMENT ESTIMATE - \$2,628,547

LOW BIDDER - BARNES ELECTRIC CO., INC. - \$2,440,000

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	DSGN	58,905	41
2	UNFO	10,898	7
3	TIME	0	60
4	CRIT	3,671	7
5	DSGN	11,917	25
6	DSGN	(562)	0
7	UNFO	4,881	60
8	UNFO	17,485	30
9	DSGN	(1,784)	0
10	CREQ	4,575	0
11	UNFO	20,934	75
12	UNFO	12,704	0
13	UNFO	18,630	22
14	CREQ	44,690	148
15	CREQ	12,500	0
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		219,444	475

CONTRACT NO. - 84-0625

PROJECT TITLE - PATROL AIRCRAFT TRAINING BLDG.
NAS JACKSONVILLE, FL

GOVERNMENT ESTIMATE - NOT AVAILABLE

LOW BIDDER - GRAHAM CONTRACTING CO. - \$4,142,000

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	UNFO	4,130	0
2	UNFO	4,919	2
3	UNFO	24,484	0
4	DSGN	13,187	9
5	UNFO	6,235	2
6	CREQ	13,903	0
7	CREQ	369	0
8	CREQ	5,300	14
9	ADMN	0	0
10	ADMN	0	0
11	UNFO	24,383	0
12	DSGN	76,929	45
13	DSGN	7,568	0
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		181,407	72

CONTRACT NO. - 83-0216

PROJECT TITLE - BARRACKS IMPROVEMENTS
NAVSTA MAYPORT, FL

GOVERNMENT ESTIMATE - NOT AVAILABLE

LOW BIDDER - FRALEY ASSOCIATES, INC. - \$9,665,000

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	UNFO	3,645	0
2	UNFO	8,746	0
3	CREQ	69,432	0
4	UNFO	6,066	5
5	ADMN	0	0
6	UNFO	76,731	49
7	UNFO	35,577	4
8	ADMN	0	0
9	CREQ	20,615	15
10	UNFO	10,206	3
11	DSGN	1,422	0
12	UNFO	18,232	37
13	UNFO	17,096	16
14	ADMN	0	0
15	UNFO	76,987	47
16	CREQ	(27,150)	0
17	CREQ	11,860	5
18	TIME	0	79
19	DSGN	5,066	0
20	UNFO	5,404	9

21	SCPE	27,150	0
22	DSGN	63,345	50
23	UNFO	0	0
24	CRIT	8,324	7
25	UNFO	8,953	78
26	CREQ	27,950	21
27	UNFO	0	0
28	ADMN	0	0
29	DSGN	1,700	0
30	UNFO	14,292	0
31	UNFO	(10,000)	0
32	ADMN	0	0
33	DSGN	95,000	0
34	DSGN	8,692	0
35	CREQ	(81,000)	0
36	CREQ	(3,950)	0
37	TIME	0	13
38	UNFO	84,884	60
39	UNFO	4,358	0
40	UNFO	9,710	7
41	ADMN	0	0
42	UNFO	85,300	65
43	UNFO	24,743	0
44	CREQ	2,417	1
45	CREQ	4,348	4
46	DSGN	2,190	0

47	UNFO	15,415	2
48	CREQ	65,300	10
49	UNFO	24,950	14
50	UNFO	1,974	4
51	DSGN	8,851	3
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		834,831	608

CONTRACT NO. - 85-0012

PROJECT TITLE - NAVY EXCHANGE & COMMISSARY
NAS JACKSONVILLE, FL

GOVERNMENT ESTIMATE - NOT AVAILABLE

LOW BIDDER - GRAHAM CONTRACTING CO. - \$12,990,000

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	DSGN	0	0
2	ADMN	0	0
3	DSGN	29,198	50
4	UNFO	6,459	0
5	UNFO	0	0
6	DSGN	23,275	50
7	DSGN	0	0
8	CREQ	0	0
9	DSGN	0	0
10	DSGN	0	0
11	DSGN	0	0
12	DSGN	0	0
13	DSGN	0	0
14	DSGN	0	0
15	DSGN	0	0
16	DSGN	0	0
17	DSGN	204,189	179
18	DSGN	15,676	0
19	DSGN	99,372	0
20	DSGN	818	0

21	DSGN	59,401	0
22	ADMN	0	0
23	ADMN	0	0
24	ADMN	0	0
25	DSGN	9,370	0
26	UNFO	3,001	0
27	DSGN	31,580	0
28	CREQ	13,500	0
29	CREQ	3,318	0
30	CREQ	13,445	0
31	CREQ	(9,426)	0
32	ADMN	0	0
33	DSGN	(634)	0
34	DSGN	1,864	0
35	DSGN	40,541	0
36	DSGN	38,392	0
37	DSGN	27,902	0
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		611,241	279

CONTRACT NO. - 81-0850

PROJECT TITLE - DATA PROCESSING CENTER
NAS JACKSONVILLE, FL

GOVERNMENT ESTIMATE - \$7,434,000

LOW BIDDER - ROBERT GAY CONSTRUCTION - \$7,867,000

<u>MODIFICATION</u>	<u>TYPE</u>	<u>AMOUNT (\$)</u>	<u>TIME (DAYS)</u>
1	DSGN	0	0
2	UNFO	10,369	0
3	DSGN	3,457	0
4	ADMN	0	0
5	DSGN	3,048	0
6	CREQ	20,456	0
7	DSGN	13,700	0
8	CREQ	2,003	0
9	DSGN	3,000	0
10	DSGN	7,429	0
11	CREQ	2,097	0
12	DSGN	1,400	0
13	CREQ	212,871	0
14	CREQ	29,273	0
15	CREQ	712,215	0
16	HDQT	(650)	0
17	ADMN	0	0
18	CREQ	(113)	0
19	CREQ	0	0
20	CREQ	115,661	0

21	DSGN	17,511	0
22	SCPE	(27,124)	0
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		1,126,603	0

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